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# THE AMERICAN ALPINE JOURNAL

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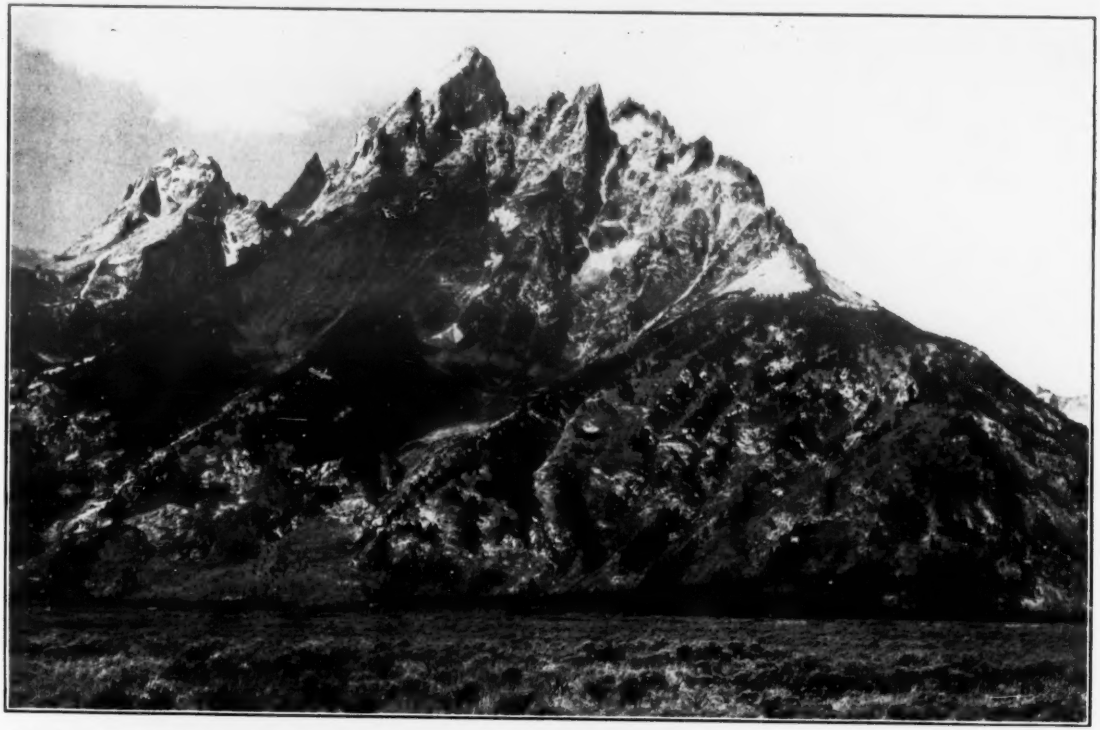

© *J. E. Haynes, St. Paul*

THE GRAND TETON (13,747 FT.), FROM THE NORTH EAST

Frontispiece

THE

AMERICAN ALPINE JOURNAL

VOLUME 1 1930 NUMBER 2

## Chimborazo, Bolivar's "Watch Tower of the Universe"

ROBERT T. MOORE

TWO giant volcanoes, one extinct and the other in the heyday of violent activity, were still fascinating the imagination of Ecuadorians, when in 1927 the author led a zoological expedition to the country that straddles the equator. One of them had never been climbed, the other although ascended fifty years previous, had defied most, if not all efforts since to negotiate the summit.[1] The latter, Chimborazo, was close to civilization. The railroad of the country half circled its enormous *massif* and gave intriguing glimpses of its mile-high crown of glaciers, 20,702 feet above the sea.[2] The former, Sangai, had secluded itself in an inextricable maze of volcanic ridges and tangled canyons that effectually barred approach. There, in lonely majesty, it jutted far out into the Amazon basin—a mysterious goddess of snow and fire that concealed itself in a perpetual aureole of cloud. My imagination was piqued by an insatiable curiosity. It changed to determination, when later I read the accounts of the distinguished explorers and scientists who had attempted Chimborazo in vain, or had witnessed at a distance the terrifying eruptions of Sangai.

July of 1929 found me once more heading a zoological expedition to Ecuador, but this time with a secondary objective which resulted in our baggage containing some very unzoological equipment. On a tropical day in Panama fellow travelers were dumbfounded at the sight of four pairs of snowshoes and four ice-axes. They did not realize that the baggage also concealed crampons, alpine

[1] An Ecuadorian, named Nicolas G. Martinez, is reported to have reached the summit in January 1911, apparently without companions.

[2] This mountain has been awarded a great many different altitudes. Juan and Ulloa rendered it 21,615 feet; La Condamine, 20,592 feet; Humboldt, 21,425 feet; Whymper, 20,545 feet and Reiss and Stübel 20,702 feet.

Frontispiece

rope, ice glasses, an ice tent and cinema paint. The snowshoes were a concession to the soft snows encountered by Whymper on Chimborazo and Dyott on Sangai. Strange as it may seem, although they were carried to an elevation of 15,000 feet on the ice of Sangai, they were discarded because of the frozen surface, while on Chimborazo, where they would have saved hours of prodigious labor, they were not taken at all.

On August 4th after twenty-one days of packing on foot and of constant rains, that followed us through boggy wilderness and maze of canyons, we climbed through Sangai's shroud and reached the frozen but smoking crater. As that story has been told elsewhere, I shall confine myself here to the extinct volcano Chimborazo.[3]

At an elevation of nine to ten thousand feet above the sea, the eastern shoulder of the "Giant of the Andes" spreads out into a plateau, in the center of which is located the city of Riobamba. On this plain many a stirring event has been witnessed by the "Mountain of Snow".[4] In fact, it has stirred the imagination of the world in past decades, not only because it was long regarded as the world's highest mountain, but also because it was associated with historical events and dynamic conquerors of the past. It was here that the great empire-builder, Inca Tupac-Yupanqui, routed the fourteenth Shiri of Quito and first took possession of the country, making his vast domains bulk with the great empires of all time. Here too in 1534 the conquistador, Sebastian Bellacazar won the decisive victory over Ruminahui, which placed Ecuador under the Spanish flag and made Pizarro master of all that was Incan. Two hundred and eighty-eight years later Chimborazo saw the same flag driven ignominiously out of Ecuador, when the Venezuelan General Sucre marched to the battle of Pinchincha and established the present Republic. In that same year, 1822, Bolivar, the Liberator of South America, gave up his attempt to add to his war laurels the conquest of the Andean giant and spent a night on the eastern shoulder of the great *massif*. That evening he changed to poet and contented himself with penning his famous "Delirio", after contemplating what he termed, "The Watch Tower of the Universe".

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[3] Chimborazo has been extinct throughout the historic period, but ancient lava flows indicate former activity.

[4] According to Enock, the "name Chimborazo is derived from the Indian designation—Chimpu-raza, or the "mountain of snow." See "Ecuador" p. 160.

The first important attempt to climb Chimborazo was made by the distinguished scientist Humboldt. On June 23rd, 1802, he ascended from the southwestern side and reached what he believed to be an altitude of 19,286 feet. A quotation from the dramatic climax of this effort will be interesting. "In many places the ridge was not wider than from eight to ten inches. To our left a precipice covered with snow. . . . On the right was a fearful abyss. . . . The rock became more friable and the ascent increasingly difficult and dangerous. We were obliged to use both hands and feet . . . one after another all began to feel indisposed, and experienced a feeling of nausea accompanied by giddiness. . . . Blood exuded from the lips and gums." They were finally stopped by a ravine "some four hundred feet deep and 60 feet wide, which presented an insurmountable barrier." Humboldt was profoundly impressed and throughout his life declared it to be the "grandest mountain in the world."[5]

The next important ascent was made by Boussingault in 1831. After several efforts he bettered Humboldt's mark by a few feet and recorded an elevation of 19,698 feet.[6] His account contains a reference to the soft snow, which became such an impediment to later climbers.

Other attempts were made, but not until the year 1880 was anyone successful in planting his colors on the summit. On January 2nd of that year Edward Whymper, the conqueror of the Matterhorn, with two Swiss alpestrians placed the English flag on the highest dome of the Andean giant. Whymper made two successful ascents six months apart. The first time he took the route followed by Humboldt and Boussingault, which led to a "breach in the Southern Walls", requiring the employment of axes to surmount it. The second time he circled the northern shoulder of the *massif*, passing through the gap of Abraspungo between the ice-fields of Carihuairazo and the precipitous Northern Walls of Chimborazo. From his Fifth Camp below "the western end of the Northern Walls" at altitude 15,811 feet, he and his companions made the attempt on the summit.

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[5] See "Travels Amongst the Great Andes of the Equator", E. Whymper p. 27.

[6] Whymper analyzes these claims at great length (See p. 76-77) and concludes that both Humboldt and Boussingault reached the same point—"the breach in the Southern Walls", whose altitude he determines as "18,400 feet".

Shortly after reaching the Glacier de Stübel they were compelled to rope up, as "the slopes were too steep for direct escalade". Traversing the head of the glacier they plunged into the area of soft snow and for several hours "floundered through it, occasionally sinking up to the knees".[7] As they reached the top, an eruption of Cotopaxi covered the snow with ashes and, blotting out the sun, compelled a hasty retreat. Whymper and both Swiss guides were incapacitated by severe attacks of mountain sickness at altitude 16,664 feet and Jean Antoine was crippled by snow blindness in addition. The means of the readings of Whymper's barometers gave an altitude of 20,545 feet. This was about 1,000 feet less than the altitude generally credited to Chimborazo. The map of the American Museum of Natural History, published in 1921, accepts the figures established by Reiss and Stübel, 20,702 feet.

Chimborazo is truly a enormous *massif*. Its crown of ice and snow, beginning at a point a half mile higher than the summit of Pikes Peak, extends a length of eight and a half miles and projects three quarters of a mile farther into the blue. A cross section at an altitude equal to the extreme tip of Mont Blanc would show a length of twelve miles. Where its flanks reach the plateau at an elevation of half its height, its bulk extends forty miles. And if its base is considered to be the Bodegas River, then a radius from its summit to its base would vary from thirty-five to sixty miles. The thickness of the ice-field at the summit is unknown, but where it is sheered off perpendicularly on the brink of the precipices surrounding its crown, it reaches a thickness of two hundred feet or more.

On August 23, 1929, a base camp for zoological work was established in the Guayama Valley on the northeastern slope of the *massif*, to be more exact on the eastern shoulder of Carihuairazo. The party was divided into three groups. Waddell Austin, assisted by an experienced Quichua collector, was assigned objectives among the birds and mammals of Guayama Valley between the upper limit of tree growth and 15,000 feet. Mrs. Moore and daughter Marilynn remained with this party. The second group, consisting of the author, his older daughter, two Quichua collectors with peons and pack

[7] When Whymper made his first ascent, he encountered even deeper snow. "The leading man went in up to his neck—we found the only possible way of proceeding was to flog every yard of it down, and then to crawl over it on all fours; and even then, one or another was frequently submerged, and almost disappeared." See Op. cit. p. 68.

animals, were to investigate the zoological life zone in the valley of Abraspungo, make a study of the habits of certain peculiar birds found only on this mountain between 13,000 feet and the snow-line at approximately 17,500 feet, and finally ascend some of the unexplored northern glaciers of Chimborazo for the purpose of obtaining natural color plates of the ice front, where it breaks over the red Northern Walls. The third group, consisting of its leader Terris Moore, Paul Austin and Lewy Thorne were instructed to follow Whymper's second route, try to locate his camps, make a small collection of birds in the desert conditions of the northwestern slopes, attempt to reach the summit via the Northwest Ridge, and ascertain if conditions had changed during the lapse of five decades. The third group carried the finest type of barometer, known as the Paulin, and a similar kind of barometer, graduated for lower elevations, was maintained at Riobamba throughout our stay in Ecuador as a check against the field barometers.[9]

The second group, led by the author, started on August 26th and ascending immediately above tree limit, surmounted the southeastern spur of Carihuairazo and descended through *paja* hummocks over a slippery zigzag into the valley of Abraspungo. After much turning and twisting to avoid miring the pack animals in quicksands and swamps, we reached a dry knoll between two mountain torrents and pitched camp beneath the cliffs of Almorzano Rumi. Toward sunset the nests of three large birds—hawk, eagle and condor—were located in the overhanging shelves of the dark cliffs. Subsequently both eagles were collected with the unwanted help of a *paramo* fire above.

Leaving most of our zoological equipment at Almorzano with two peons, I took their leader Juan, my daughter and the two Quichuas straight up the valley in a northwesterly direction almost to the top of the pass, which has an altitude of 14,480 feet. Shortly before reaching it, we turned sharply to the south and climbed up a steep wall of ash which supported a few grasses and a peculiar stiff plant with club-like flowers. The plateau on top was splotched with coral red and madder brown from the variegated clumps of this

[9] Our Paulin barometers acted excellently throughout the expedition. The results contrasted greatly with the unsatisfactory irregularities of aneroids used two years previous.

strange plant. Every club and every spear of grass was frozen into icy stalagmites. A biting wind rattled them together and sent cold shivers up the spines of the Indians, unused to a temperature below freezing. At this point Carlos and Manuel were dispatched in a southeasterly direction into a defile or couloir, that gouged the plateau transversely in front of us and took on the proportions of a canyon. They were instructed to proceed east to the northwest of the moraine of the Glacier de Moreno and obtain specimens of the Chimborazan Hill Star, a hummingbird,[9a] which makes its home in the ash pockets from 13,500 feet to the snow line and has been found nowhere else in the world except on Chimborazo.

As the Quichuas departed, Juan wavered. He was cold and did not know the terrain. He had never approached so near to the glaciers before. Fearing his waning courage would induce him to desert, as the Alao peons had deserted us in the Labyrinth of Sangai, I hurried him down into the protection of the transverse couloir. The bottom of it was shielded from the chill winds and warmed his courage. I now took the lead and he agreed to follow.

To the south a huge spur from the cinder zone jutted out over our heads. We rounded its northern end and immediately caught sight of the western one of the unexplored glaciers. It was less than two miles away and bulked majestically into the tropical ultramarine sky. Its pompeian red walls and ice-cliffs seemed unscalable and, where the glacier did not break sheer on the brink of precipices, it swept down over lower cliffs into great crevassed areas. Juan was visibly impressed and pointing to the panting horses, intimated they could proceed no farther. They were now at an altitude of about 15,000 feet. The offer of a bonus, if he would take them up to the end of the *paramo* and beginning of the cinder zone, won his hesitating consent. The horses wound up sharp slopes and entered a narrow ravine of ash, flanked on the east by lava walls. Here the peculiar plant with large orange blossoms like a thistle, *Chuquiragua insignis,* dotted the powdery ash with brilliant color. I glanced eagerly from flower to flower and my expectation was rewarded. Hill Stars were volplaning from bloom to bloom in a mad search for

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[9a] *Oreotrochilus chimborazo chimborazo.* See Gould's *Monograph of the Trochilidae,* Vol. II, p. 68.

*Photo. R. T. Moore*

UNEXPLORED NORTHERN GLACIERS OF CHIMBORAZO.
GLACIER KARLENE BENEATH SUMMIT.

*Photo. R. T. Moore*

EXTINCT VOLCANO CARIHUAIRAZO FROM CAMP IN VALLEY OF ABRASPUNGO.

The near slope conceals a large glacier. The highest point at the extreme right has never been ascended. Whymper climbed the lower peak to the left by mistake in a fog.

*Photo. Terris Moore*

AT 19,300 FT. ON STUBEL GLACIER, FIFTH DAY NOON, LOOKING FOR PACIFIC OCEAN 100 MILES DISTANT.

*Photo. Terris Moore*

AUSTIN, THORNE AND PEON AT CAMP NO. 3, 15,800 FT.

These are almost certainly the "Lava Blocks" of Whymper. Glacier De Reiss in background.

chilled nectar or tiny insects. At our approach they rifled like bullets from plants to crannies of the lava wall and crouched in fear, while they inspected the strange intruders into their cold paradise.

The character of soil, climate, flora and fauna had all completely changed since we left Abraspungo. There the atmosphere had been damp and the ground soggy, a condition enjoyed by many dwarf meadow plants. Here was powdery dry ash, that patently had not seen rain for weeks. As we paused for lunch, a study of the sky revealed the cause. At a point directly over the summit of the mountain, two different types of atmosphere were meeting each other. Heavy rain clouds swept up the ice-slope from the east. As they reached the dome, they were tossed into streamers by a dry desert wind which was mounting up the western ice sheet from the Arenal. Before our eyes a battle of forces was taking place, a condition of activity which must be more or less permanent for long periods of time. The wet clouds were buffeted about and torn to tatters, eventually dissipating. Sometimes they attained a point over the extreme western margin of the glacier, but as a rule they vanished before they arrived at the central concave gouge in the face of the ice-cliffs.

After we climbed out of Hill Star Valley, we headed south and upwards for the glacier. Reaching the end of *paramo* grass, we entered the cinder zone and left behind all traces of grass or plant life. Blocks of lava and soft ash, into which footsteps sank, made the ascent slow for the next half-mile. Frequent stops were necessary. To the left and east of us a second glacier, also unexplored, swept down in a wide tongue of snow a thousand feet lower than the moraine of the glacier we were approaching. Its cliffs were far above and seemingly at this distance insignificant compared with the ones that towered above our heads to the south. Traversing at acute angles, we headed up the main cinder ridge to our right. At 1.30 p.m. permanent snow was reached at a point several hundred feet above the crevassed areas of ice, which tumbled down the valleys to the right and left of our commanding arête. Where we mounted the ice, we were at a point nearly half the height of the sheer walls to the west. The next two hours were employed in securing color photographs and black and whites of our glacier and of the ones to the east and west—the precipitous rock walls and the sheered fronts of the upper ice. Investigation of records after our return to the United

States indicated that no one had previously set foot on these glaciers. The one we first approached, I called "Glacier Karlene".[10]

The return down the desolate ash slope to the east of Cinder Spur and along the moraine of the eastern glacier brought unexpected descents and memorable views of the glacier-encrusted pinnacles of Carihuairazo. As darkness fell we reached the valley and my horse foundered in a morass. Prodigious efforts brought him to his feet and threading a difficult course through the bogs in the twilight, we came to Camp Almorzano after night fell.

At the same hour that we photographed Glacier Karlene, the third division of the party was floundering in deep snow near the summit of Chimborazo.[11a] They had left the base camp on the afternoon of August 23rd and, taking the Abraspungo route, had been led by the peons too far to the north, so that the first camp had to be made close to the snow line of Carihuairazo on its southern shoulder. Snow fell during the night and the following morning. Terris' feet, which had never fully recovered from the Sangai climb, puffed out into pussed areas and gave considerable trouble, causing him to go barefooted. The peons proved unruly, but were persuaded by artifice to continue.

On the 24th the top of the pass above Abraspungo was reached, where they turned to the southwest in a driving snow storm. Camp was made above a valley fitting the description of Whymper's Camp No. 4, where little water could be found, but firewood was abundant. The thermometer registered 30 degrees Fahrenheit. A howling wind banged the tent all night and snow fell again.

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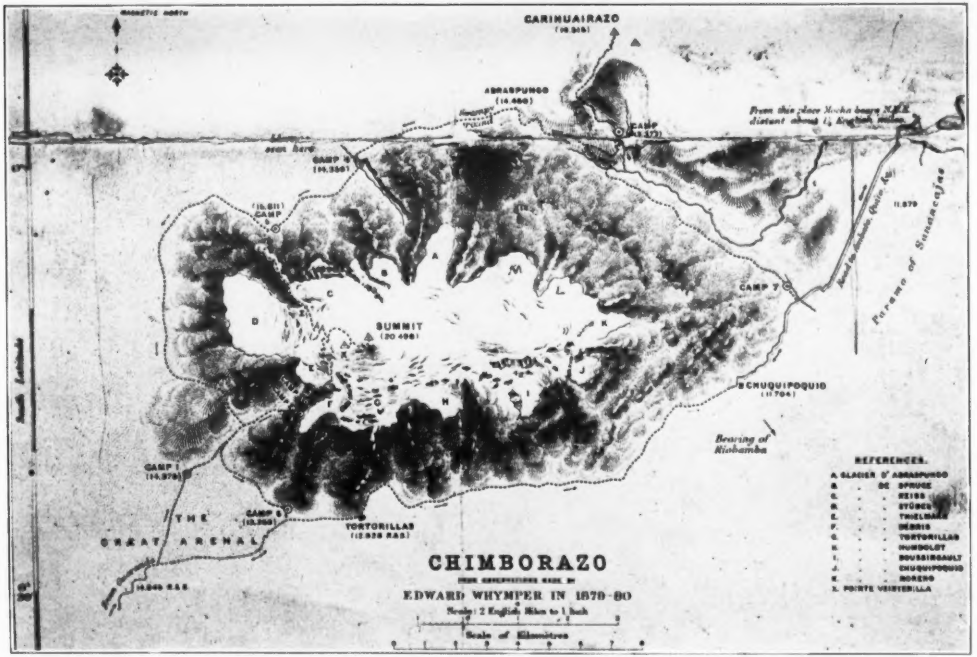
[10] See map of Chimborazo herewith. This is a part of the map which accompanies Whymper's volume, *"Travels Amongst the Great Andes of the Equator"*. Whymper admits that the drawing of the northern glaciers of Chimborazo are not founded on actual explorations. As a matter of fact they are decidedly inaccurate. It is clear that both Whymper and a later explorer, Hans Meyer, viewed them only from a distance of several miles, probably from Abraspungo, from which the lower and major section of Glacier Karlene and the one to the east of it cannot be seen. The altitude of the snowline of these glaciers cannot be given accurately, as the barometers were carried by the third group. As the third group found the beginning of permanent snow at 18,500 feet on the northwest side of the mountain, where climatic conditions are warmer and dryer it is assumed that the snowline of Glacier Karlene is not higher than 18,000 feet and that of the glacier to the east of it about 17,000.

[11a] From this point on, I follow the excellent notes, made by Terris Moore. The wording is my own, except where quoted.




This map from Whymper shows the approximate location of the routes of the Moore Expedition to the north east, north, and north west of the mountain. "M" indicates Kaiser Glacier and the spur to the west may be the main cinder ridge traversed by the [illegible] Expedition to the snowline. The main climbing party followed the Whymper route up the north west ridge as indicated.

*Photo Karlene Moore*

NORTHERN WALLS OF CHIMBORAZO, TONGUE OF GLACIER KARLENE
In left center. Author and daughter reached snow line in this locality.

*Photo Terris Moore*

AUSTIN AT CAMP ON VEINTEMILLIA SUMMIT
Early on the sixth day, elevation approximately 20,500 Ft. Note deep snow.

*Photo Terris Moore*

THORNE, AUSTIN AND PEONS
At 18,500 ft. on Red North West Ridge, followed by Whymper on his successful ascent.

Travelling west on the morning of the twenty-fifth over a desert-like slope, they arrived at Whymper's Northwest Ridge at 11.00 a.m. and almost certainly identified his Camp No. 5 at the base of lava blocks (15,811 ft.). At this point two peons and the mules were sent back to the base camp as the party would take to the ice on the morrow. Two peons remained to care for the party on its return in case of accident. The afternoon was spent in repacking and dividing the loads into three portions, for the peons refused to go beyond the ice. Here the Bergans ruck-sacks proved serviceable. The most valuable part of the equipment was the Fiala ice tent, which weighed only eight pounds. It was hoped it could be carried to the summit and a night spent there. Snow fell again during the night and blanketed the two peons, who had crouched in crevices of the rocks. "Casi moremus, patroncito!", they wailed, at day break, "We are almost dead!" Some hot cocoa and Quaker oats soon warmed them up.

On the 26th Terris found his feet better after lancing and at 8.30 the party started for the Northwest Ridge to the right of the Glacier de Reiss. Snow squalls beset them in quick succession and caused a temporary halt at 16,500 feet under a great overhanging bluff. The peons stopped at the snow-line, which was reached at 2.00 p.m. in clear weather at an altitude of 18,500 feet. The snow-line was much higher—1500 feet—than it had been fifty years before.[12] They pushed along the arête to a point where the "Northwest Ridge abuts the Northern Walls", a point marked by Whymper as 18,900 feet above the sea. Here they camped for the night. Whymper had made his last camp at the lava rocks below, deciding that the slope at this point was impossible. The ground did slope at a serious angle. Paul tried without much success to dig a level platform through the snow into the frozen gravel, while Terris and Lewy went back for supplies. The wind rose. The temperature dropped rapidly. The sun set. As they struggled to pitch the tent on the slippery slope, a gust of wind broke the pole in two. Nothing could be done but dump the equipment on the ice cloth inside and crouch on top of it. The altitude had begun to produce its preliminary effects—a noticeable panting. Paul, who had undergone an operation for appendicitis

[12] See Op. cit. Note p. 321. The barometer readings have not yet been computed, but the altitudes given here are nearly correct, conforming closely to those of Whymper.

three months before, dropped exhausted and was the only one who slept in spite of the uneven surface.

At 3.45 a.m. of the 27th Terris started the Optimus stove among the disorganized pile of baggage, and cooked oatmeal and tea, the latter being craved inordinately. "Dawn broke clear and cold with Cotopaxi, Sincholagua, Iliniza and Antisana against the north-east horizon." At this point Whymper had continued to watch an eruption of Cotopaxi, which had taken birth before his eyes when he was 3,000 feet lower. The highest volcano in the world, 19,498 feet, from a point sixty-five miles away had vomited ashes towards Chimborazo. The eruption had begun when Whymper left the "large block of lava" and by noon the clouds of ashes had passed the summit of Chimborazo.[13] Terris secured motion pictures and stills in the early morning light but of course without eruptive accompaniments!

At the "islet of rock", mentioned by Whymper,[14] the party roped up and started south across the head of Stübel Glacier. Many crevasses appeared on its surface below, as they rose. It became necessary to traverse. The surface of the ice held firm and the crampons made it possible to pass over a thirty-five degree slope. After crossing a crevasse by a snow bridge, the leader suddenly plunged into soft, deep snow. In an effort to climb out of it in various directions, the party became confused and floundered around aimlessly for some time. They did not realize that they had now wandered too far to the south. Terris called a halt for consultation and tea. Snow was boiled on the Optimus behind the protection of scarfs and tea cooked, which revived flagging spirits.

It was now decided to attack the snow with a system. Fortunately it was not wet, as Whymper had found it.[15] Terris and Lewy alternated in tramping down a trench. It was painful labor at an altitude close to 20,000 feet, where every movement is a tremendous tax on heart and lungs. Turns had to be taken frequently. Hours passed. At 5.00 p.m. a lessening in slope was observed ahead; the curvature seemed to be flattening and convinced them they were reaching the top of something. An hour before sunset it was decided to pitch the tent. While Paul and Lewy located a site, Terris proceeded to the top of the dome through deepening snow. It was the Veintemilla summit! They had veered too far to the south! Chimborazo has two

[13] See Op. cit. p.p. 322-330.
[14] See Op. cit. p. 323.
[15] See Op. cit. Note p. 71.

summits and this was the *lower* one by about two hundred feet. The higher one could be seen about a half-mile to the northeast. It would be impossible to pack down a trench to it before night arrived. The trench already made was now almost waist deep. The top of the dome, where Terris stood, was not more than thirty or forty feet above the site chosen for the tent. Returning to it. Terris helped the others dig a space in the snow and stake it down.

If the summit of the highest dome is 20,702 feet according to Reiss and Stübel, then the tent occupied an altitude of nearly 20,500 feet. On the other hand, if Whymper's calculation proves correct, a lower altitude of about 20,300 feet must be accepted. [15a] When the barometer readings of the climb have been computed, it may be possible to determine which altitude is more nearly correct.

The temperature fell that night to 6 degrees Fahrenheit, nine degrees lower than Whymper had experienced fifty years earlier. Whymper had not tented on either summit and did not have the advantage of an Optimus stove to warm up a tent interior. It raised the temperature within the tiny home about thirty degrees. Two of the members of the party felt the effects of the altitude; it caused extreme lethargy but did not produce violent symptons of *siroche*. The wakeful ones took repeated readings of the various instruments, including body temperatures. Only one slept well that night.

Not until 10.30 the next morning did the party set out for the higher summit. They thought they could accomplish the half mile in an hour, but it required almost three. The snow became deeper. The walls of the trench reached to the waist. At the low point of the dip between the two domes it occurred to Terris to read the barometer. While he was doing this, a fly as large as a common horse-fly landed on Lewy. Desperate efforts were made to catch him, but without success. A few moments later, a medium-sized brown butterfly flew overhead, going quite vigorously, as if a rarified atmosphere of 20,500 feet and a temperature of 10 degrees were merely a tonic for an Ecuadorian creature of wings. Finally at 1.15 p.m. the real summit was reached. At that moment clouds descended upon the party and rendered photography difficult. When the motion pictures were developed weeks later, it was found that they gave an excellent idea

[15a] Although all records have not been investigated, it appears at present writing that this is the highest point on the Western Hemisphere where human beings have tented.

of the contour of the domes and the surrounding mountains. The climbers were more fortunate than Whymper. On neither ascent did he obtain a view from the top. The first time the sky was obscured by heavy clouds and the second time by a pall of ashes from Cotopaxi. The snow took on the appearance of "a ploughed field" and, had it not been for the wands, which Whymper with characteristic caution employed to mark his trail, the climb might have ended disastrously.

In spite of splendid views in every other direction, the absence of Sangai from the southeastern sky was a great disappointment. Whymper had caught sight of it on the day after his first ascent, as he was gazing across the Glacier de Debris.[16] He was astonished at the power of this "formidable volcano", for it was ejecting gases at a tremendous rate of speed calculated at "twenty-two miles per minute". He was surprised that a volcano so formidable should be known to Ecuadorians only by name and stated he "was not aware . . . that anyone had approached the base of the cone." Whymper himself did not attempt to reach Sangai, because of its distance,[16a] although he ascended almost every other mountain of importance in Ecuador. Just twenty-four days previous to the arrival of our party on the summit of Chimborazo, Terris, Lewy Thorne, Waddell Austin and the author had succeeded in making the first ascent of Sangai—a costly effort which had required twenty-eight days of packing entirely on foot through a labyrinth of canyons of ash and lava, during which time rain or snow had fallen every day. A brief summary of this expedition is given in the later pages of this magazine.

The obscuring of Sangai by clouds was compensated by memorable views to the north, west and east. Many of the greatest active and extinct volcanoes thrust their heads above the sea of clouds, which floated below at an altitude of about 16,000 feet. Altar, 17,729 feet, pierced the eastern sky with its glittering candles. The black orifice of Tunguragua, 16,689 feet, now nearly free from snow, cut a jagged rent in the swirling blanket. Slightly to the east of north Antisana projected its mighty glaciers 18,884 feet through the shroud and into the indigo dome. Almost in line with the frozen giant a hump in the cloud ceiling marked more humble Quilindana, 16,138 feet. But the tossing fleece completely hid the new ravager

[16] See Op. cit. p.p. 73-75.
[16a] See Op. cit. p. 96.

*Photo. R. T. Moore*

SANGAI, 17,464 FT., FROM CAMP IN CULEBRILLAS VALLEY AT MARGIN OF THE LABYRINTH.

From this point it took fifteen days to reach base of the cone.

*Photo. R. T. Moore*

ANTISANA (ABOUT (19,000 FT.) SITUATED NEAR THE EQUATOR IN ECUADOR AS SEEN FROM 10,700 FT. IN THE VALLEY OF BANOS DE PAPALLACTA

of the tropics, Reventador the Burster, which in March of 1926 had begun its barrage of incandescent bombs and in a moment made itself master of the Napo and the Cocoa. Cotopaxi, the highest active volcano of the world, thrust its upper mile of glaciers above the seething shroud, 19,498 feet of sheer majesty. Then farther to the west came Corazon and Iliniza with its unclimbed cornice, and the lake-filled crater of Quilotoa and historic Pichincha, whose dying abyss has been adopted by the Fire Throat Hummingbird as fit home for its passionate activities.[16b] Space does not permit even mention of the forty odd other volcanoes of this tiny country, two thirds the size of California. We had climbed some of them, but longed to try the still virgin peaks, such as Altar and Iliniza and the jagged east pinnacle of Chimborazo's own "bride", Carihuairazo, only eight miles across the snow field.[17]

[16b] See Gould's *Monograph of the Trochilidae*, Vol. III, p. 185. *Chalcostigma stanleyi* is more frequently called Stanley's Thornbill.

[17] See "Ecuador", by Enock, p. 161. The natives term this volcano Chimborazo-embra—that is, "Chimborazo's wife".

## Mount Sir Alexander

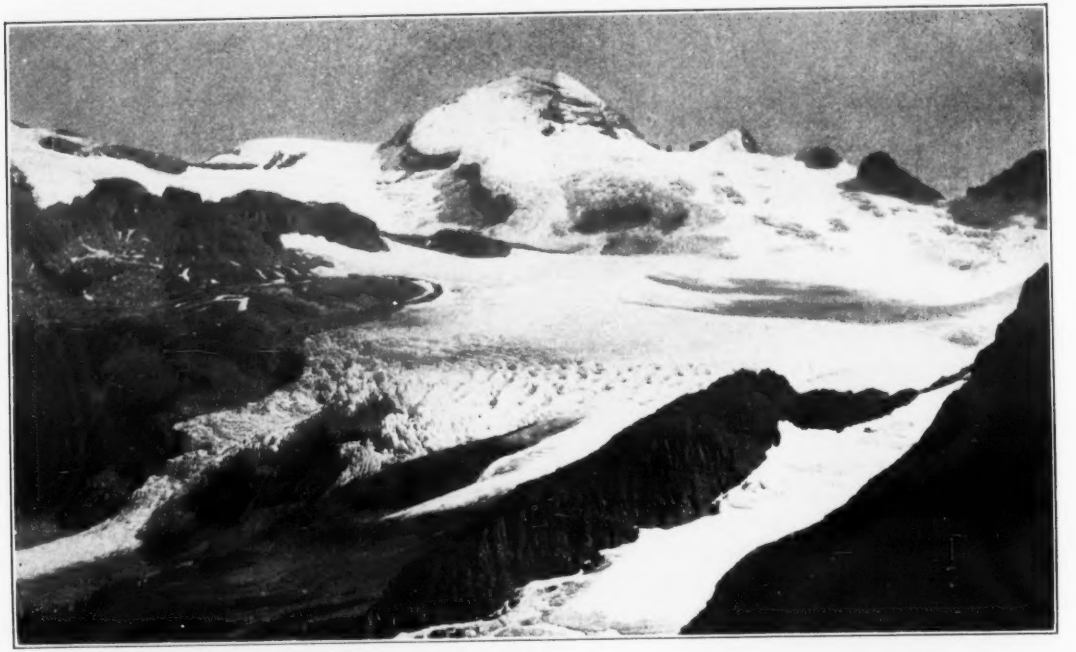
NEWMAN D. WAFFL

MT. SIR ALEXANDER has been the subject of considerable notice, partly because of its isolated location and partly because of the difficulties which seemed to surround its ascent. Situated almost at the northern end of the truly Alpine part of the Canadian Rockies, it stands out in a striking way over the surrounding territory and at once challenges the attention. The Indians called it "Kitchi" which might mean either "Big Mountain" or "Big Chief". The Canadian Geographic Board however named it after Sir Alexander Mackenzie, who made his famous journey across that part of the continent in 1793 and passed through neighboring valleys to the north and west.

However many times the mountain was seen from a distance, it was unknown to the world of mountaineers at large until Mr. S. Prescott Fay and Miss Mary L. Jobe (now Mary Jobe Akeley) wrote simultaneously about it in the Canadian Alpine Journal, Vol. 6. Mr. Fay saw Mt. Sir Alexander in 1912 from the summit of Casket Mountain near the head of Sheep Creek and two years later in company with Mr. C. R. Cross, Jr., approached and photographed the mountain from a distance of only six miles. During the same summer (1914) Miss Jobe in company with Donald Phillips, penetrated the outer defenses of the *massif* and came to the head of the northeast glacier which begins at the edge of the snow-field about the peak itself. They built a cairn there which we found this summer (1929).

Again in 1915, Miss Jobe and Phillips headed an expedition to Mt. Sir Alexander and it was on this occasion that three men of the party, Phillips, Tyler and Doucette, climbed the northeast arête until they struck the tremendous ice cornices which guard the top. Less than 200 feet separated them from that end of the summit ridge.

In 1916, Mr. Frederick K. Vreeland of Montclair, New Jersey, who was following up the original Alexander Mackenzie route, turned aside and visited this section from the west. There was less difficulty from this direction and after a long glacier climb of some hours, he reached the foot of the west face. The pictures and information which he freely gave us were of great importance. In fact it



*Photo, F. K. Vreeland, 1916*

MT. SIR ALEXANDER FROM THE NORTH WEST

Party crossed through lowest gap in left sky line, and ascended to upper ice terrace through break in cliff band indicated by arrow, to reach the north west face.

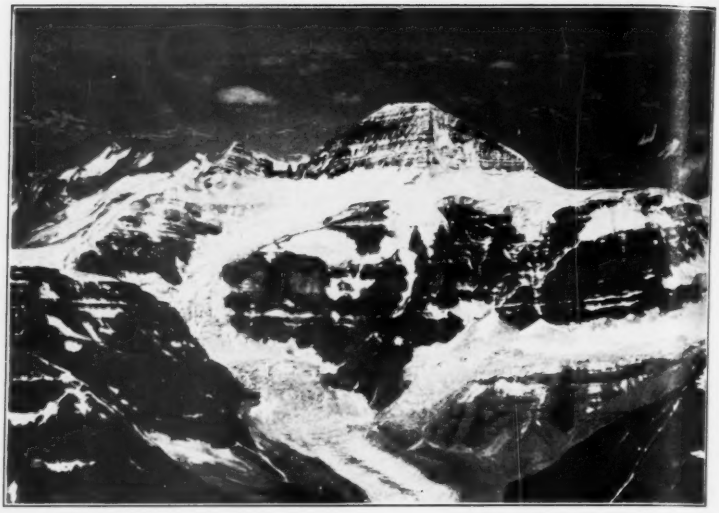


*Photo Royal Canadian Air Force*

AIR VIEW OF MT. SIR ALEXANDER FROM THE SOUTH.

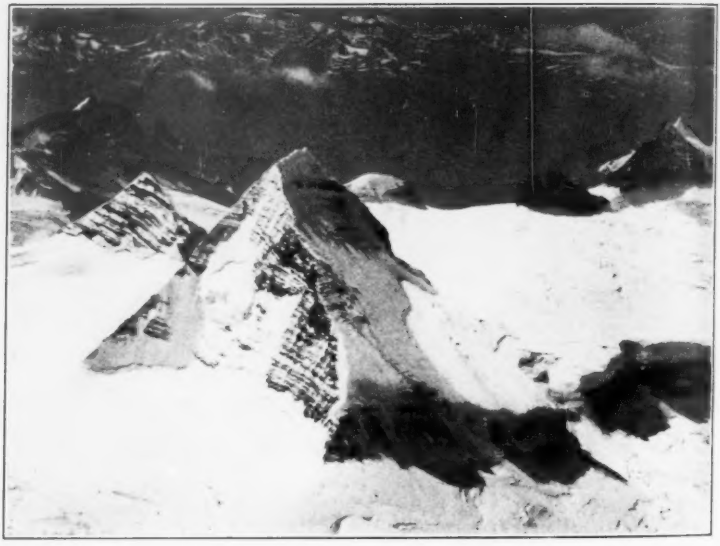


*Photo Royal Canadian Air Force*

MT. SIR ALEXANDER FROM THE NORTH EAST

North East Arête in center.

was Mr. Vreeland who discovered the vulnerable part of "Kitchi" and it was his suggested route that we followed for the most part.

Further piquancy was given to the quest by Mr. H. F. Lambart of the Canadian Geodetic Survey who flew over Mt. Sir Alexander in 1922 and from his study of the ice crest concluded that it was a real specimen of a mountain which could not be climbed. All these things added to its attractiveness and when the chance came, chiefly through the initiative of Dr. Mary Goddard Potter, we were only too glad to make Sir Alexander the goal of a summer's vacation achievement.

There were seven in the party, Dr. Mary G. Potter, Miss Helen I. Buck, and Messrs. Mortimer Bishop, Benjamin S. Comstock, Andrew J. Gilmour, Frank N. Waterman and the writer. Some were there to extend their trail riding record, some to climb Sir Alexander and some were like that famous bear that "went over the mountain to see what he could see". The staff was provided by Donald Phillips and consisted of Adam Joachim, Indian guide, David Moberly, Arthur and Kenneth Allen, wranglers, and Jack MacMillan, cook. It was a fine crew and they served loyally and well.

The route chosen was longer than that via the Jackpine valley but the trails were better and we saved time in the end. It followed up the Snake Indian River to Willow Creek, then to Rock Creek and by a new cut-off to the government trail from Entrance. This leads up the North Hay River over Eagle's Nest Pass, down the Sulphur, up Kavass Creek and thence to the Smoky River just above its junction with the Muddy. After crossing the Smoky and shortly after the Muddy, the trail continues through Dry Canyon to Sheep Creek. Near the headwaters of Sheep Creek, we turned to the right over Surprise Pass to Surprise Lake, then to the west over Providence Pass, crossed between Wapamoon and Porcupine (Kakwa) Lakes to Lake Mariel, then over the divide to the headwaters of the South Branch of the Big Salmon and finally up Thunder Creek to the foot of the talus slopes at its head.

Adding the daily records gave us 148 miles total distance, which was covered in twelve days, including one day's lay-off for snow. The last two days were short ones and the route from Providence Pass to Thunder Valley can be covered in one long day. Being new to the trail riding game, I found enough experience in these few days to provide material for a small book which, however, is not germane to this account. Yet one must mention the day that led us over the

long alpland approach to Surprise Pass and down the other side, the sudden and unprepared revelation of Surprise Lake with its precipitous slopes, the stretch of unforgivable muskeg at the bottom, and finally the turn over the pass that opened out on the district we were after, showing Mt. Ida, Koona, Thunder, and after a time Mt. Sir Alexander itself. It was the great trail day of the trip.

From the pass and from minor climbs in the next few days we were able to verify the previous descriptions and get a fair idea of the lay of the land. The *massif* of Mt. Sir Alexander is roughly an irregular mound from 7000 to 8000 feet in altitude with an extension towards the east that gradually loses altitude. The eastern end is distinguished by two rock towers with a small one between and these towers are going to provide someone with an exciting climb some future day. The *massif* is cut off sharply on the south and southeast so that tremendous and impassible cliffs rise directly from the South Branch of the Big Salmon. North of the eastern extension of the *massif* lies a long glacier heading in a snow-field and extending to about the 4000-foot level. We knew this as the northeast glacier. North of the glacier and acting as its side wall, there is a rock ridge some 6000 feet in height known as Thunder Ridge. On the north side of this ridge is the deep and narrow Thunder Valley at the head of which was our base camp, and on the other side of the valley another ridge, somewhat higher but not so steep and wooded to about 5500 feet. At the head of Thunder Valley there is a small but very steep rock mountain. Glacial streams come from both sides, the one from the side toward Sir Alexander being the larger. This heads in a glacier called Castle glacier, so named from the ridge of castellated rocks back of it and separating it from the snow-field about the main peak.

The west and northwest sides of the *massif* sink gradually into the valley of the Big Salmon and, if there were trails leading up that valley, it would be the best way of reaching the peak. Another branch of the Big Salmon goes further north towards Mt. Ida and it is quite possible that horses could be taken within striking distance of that mountain by following this branch to its source.

Mounted on top of the *massif* is the peak of Sir Alexander itself to which a recent survey assigns a height of 10,900 feet. The effect of much greater height is caused by the deep valleys on each side, the relatively low altitude of neighboring mountains and the low per-

manent snow-line. One is not surprised to know that the first estimates ran as high as 12,500 feet.

The general shape of the peak is that of a wedge, of which the edge runs in an east-northeast and west-southwest direction. The sides are steep and the arêtes sharp and broken. The distinguishing feature of the mountain, however, is the astonishing ice crest that stretches the full length of the summit ridge. The ice must be from 100 to 150 feet above the rock support and seems to have been built up year after year, while the steepness of the sides has not allowed it to expand sideways. There is very little overhang and what there is, lies towards the north. On that side there are a number of curious wind-carved buttresses, immense in size and arranged in parallel, which look as if they were architectural supports of the cornice. As far as I know this summit formation is unique.

Our approach was from the head of Thunder Valley up a sharp-edged moraine leading to the snow-field below Castle Glacier. Turning to the left before going on top the ice-fall, took us over a low col to the upper part of the northeast glacier which led directly to the upper snow-field. The base camp was on an extension of the boulder-field which was covered with brush and scrub trees. There was not a little dismay to find our camp in such a deep and narrow valley with good sized glacial streams close on either side. Nothing could be seen of the country and movements about camp were strictly limited by the terrain. In these circumstances, the non-climbing members of the expedition exercised something more than ordinary human patience, for it was two full weeks before we broke camp and started back. By that time it was too late to consider an attempt on Mt. Ida, which promises, incidentally, to be an escalade of the first order.

We arrived at camp on July 19th, but owing to a fall of snow, it was not until the 22nd that we reached the upper snow-field, visited the foot of the northeast arête and found a good site for a high camp on an outcrop of rock at the head of the northeast glacier. From an aneroid we estimated the altitude of high camp at 7400 feet and base camp at 4300 feet, but in view of the surveys, I fancy they were somewhat lower. Their relative difference stood however at 3100 feet.

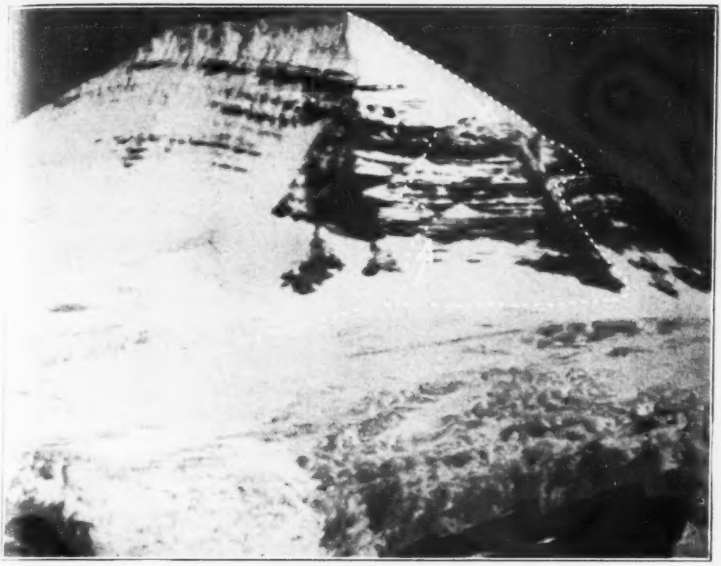
On the 24th, we carried supplies up and four of us, Miss Buck, Dr. Gilmour, Mr. Waterman and myself, stayed the night through a vicious wind with intervals of pelting hail. The next morning con-

ditions were impossible for climbing and down we went leaving supplies and tents anchored with stones. This storm lasted until the 29th and it began to look as if we would not even get a fair try. It did clear finally and on the 30th, although we expected to find things in pretty bad condition after such a siege of weather, we again left for the high camp.

On the 31st Miss Buck, Dr. Gilmour and I made a start just before 5:00 in the morning. The weather was fine, rather sharp and with some wind but not bad. The northeast arête is the logical route but its condition was poor and there was the question of the huge ice cornices that had stopped the 1915 party. We had counted through the glasses four distinct ice mounds on this arête just below the summit ridge which promised a lot of hard cutting; also the highest part of the top ridge appeared to be nearer the westerly end and this meant a long traverse which might prove impossible. Further, Mr. Vreeland's pictures mentioned above, indicated that the west face was climbable, even with full allowance for foreshortening. So, although there had been no chance to scout that face, it seemed best to make the attempt there and trust to finding our way as we went.

The route carried us past the north face and over the upper part of the northwest glacier. Below the northwest arête of the peak, there is a break in the base cliffs through which ice and snow piles down on the glacier and this furnished us with a lead to the snowfield on the west side. We started up this lead at 6:30 and ran into some stiff cutting right away. It took a discouragingly long time to surmount the lower ice terrace. After that one could kick steps for the most part and we made better progress. Still it was 9:30 before we turned the northwest arête and started up a long snow tongue which grew steeper and steeper. Presently we came to outcrops of rock and these were all covered with a glaze of ice, so we stuck to the snow wherever we could. It was slow work, for the pitch was steep and every step had to be prepared. The wide cutting blade of the No. 1 Chamonix *piolet* with its heavy head, was just the thing for this work. One slash carried away the surface ice leaving an easy place to kick in. The under snow was not well consolidated and the slope being what it was, we ordinarily used finger holds cut in the crust to help draw ourselves from step to step.

At about 10,000 feet there is a wide band of hard rock which juts out as a cliff and this is the real problem of this route. We could have traversed to the right across the face to find a place



*Telephoto. F. K. Vreeland, 1916*

MT. SIR ALEXANDER FROM NORTH WEST

Showing great cornices of Summit Ridge and routes of 1929 party.

*Photo. H. I. Buck*

WESTERLY WALLS OF MT. SIR ALEXANDER

Taken during ascent.

*Photo. F. N. Waterman.*

MT. SIR ALEXANDER FROM RIDGE NORTH OF CAMP, THUNDER RIDGE IN FOREGROUND. CASTLE GLACIER, OVER WHICH ROUTE LAY, IS SHOWN AT RIGHT.

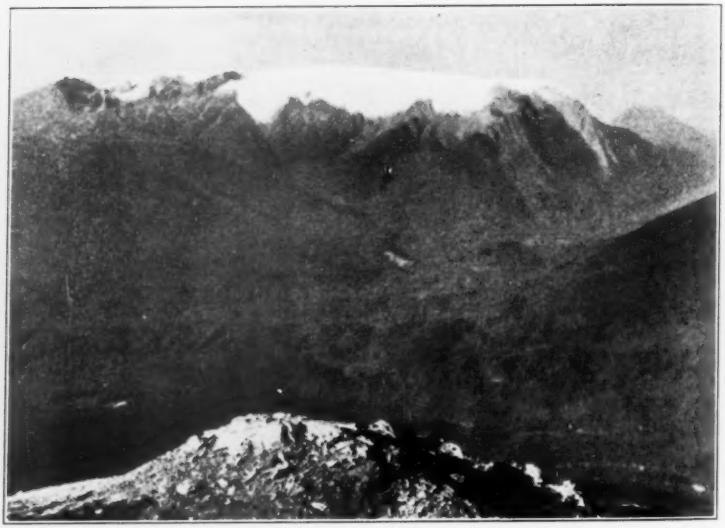


*Photo. F. K. Vreeland.*

ICE DOME, 7,800 FT., COVERING FIVE SQUARE MILES, DISCOVERED AND CLIMBED BY F. K. VREELAND 1915.

where the stratum broke down and, as the event showed, this would probably have been the best course. However, we had seen from below, while passing the northwest corner, a line of white reaching without a break from the bottom to the top of the cliff and since this was shortly cut off from view, we knew there must be a chimney or narrow couloir where some part of the rock had broken away from the main body. This was a sure lead, barring some unexpected obstacle, and we made for that general direction, which meant keeping further to the left than we otherwise would have done.

So slow was our progress on this line, that it must have been 1:30 p. m. before we turned the corner of the rock and could look up the couloir. The rocks were too perpendicular and too much covered with ice to be of any use, but the ice was continuous in the center. A little later, we began to surmise that a straight up-and-down part of the lead might make trouble. It did. It was just an ice wall backed by rock so that you couldn't even cut through it as a last resort. First, steps, or rather niches shoulder high, had to be cut rising towards the left. Then by chipping the ice off the rocks for a shoulder brace and making a side step for the right foot as a brace in the opposite direction and with a high finger-hold cut for the left hand, one could raise himself so that the head was above the ledge. Then holding that position, uncomfortable as it was, one had the right hand free to cut holds for the pull over the edge. We must have taken well over an hour and a half to overcome this small section. Anyway it was 3:20 when we climbed out on the side rocks and it took some ten minutes more to surmount the whole ledge to the snow on the upper west face. We could see the top now and as the way was clear, we took out ten minutes for refreshments. Except for a momentary halt at 10:45, we had worked steadily from the start; yet so absorbing was the climbing that none of us, I think, was conscious of either hunger or fatigue, or the time that had elapsed.

At 3:40 we started on the last part and now we could walk. Our aim was to get on the southwest arête just below the top ice crest and from there mount the cornice from the windward side. Except for a few small steps cut, it was walking all the way. We reached the west end of the ridge and at once proceeded across to the high point. The time there was exactly 4:52 and the elapsed time from the start just short of twelve hours.

Despite the late hour, the conditions were good for a long distance view. Mt. Ida and the Three Sisters stood out in the near distance to the north and beyond them a mass of lower mountains, covered lightly with snow, stretched out as far as one could see. Far to the south along the horizon, there were very large snow fields broken through by mountains that were obviously of major caliber. Not familiar with these mountains, I could not identify any of the groups, but Dr. Gilmour and Miss Buck pointed out Mt. Robson definitely and the Cariboos to the right. Far beyond in the distance were other ranges and they both felt sure that they could see Mt. Edith Cavell. Neither to the east nor west were there any groups to challenge attention.

It would have been fine to have traversed the whole ridge and it appeared to be easy. There were no bad breaks visible and it was not narrow enough to cause trouble. But five o'clock seemed fairly late to be on top of this particular mountain and the descent weighed on our minds. None of us thought it wise to attempt the same route down. Apart from difficulty the sun had been shining for some time on the steep snow slopes and it could not help being distinctly unsafe below the big cliff. So at 5:15 we started back for the west end of the crest and followed down the southwest arête. We determined to continue on that line until the rocks broke away and then work out on the southwest face and down if possible. We had not seen this face, but it was not likely to be any worse than the route up. It turned out to be much easier. The general pitch was less and there was snow only on top of the ledges and not enough to be troublesome. We descended three or four ledges and then traversed to the right well across towards the center. Lower down we traversed back to reach a snow tongue which led us down to the snowfield without further trouble. Then it was nine o'clock and forty-five minutes later we were back to the break in the ice cliffs up which we had come in the morning.

Three quarters of an hour more were used up on this part of the descent and if it had not been for three *rappels* which we used to hasten progress down the last ice terrace, the time would have been much longer. Thinking that some such occasion might arise, I had been carrying some wooden sticks all the way from base camp and now was a first-rate time to use them as pitons. In the growing darkness it would not have been easy to locate the steps and finger-holds in the ice.

It was too dark to find our steps of the morning or even to see the steps of the man ahead and since we were traversing a moderately steep slope and hopping crevasses on the glacier our progress was slow. We found that the conversation of tired people in these circumstances was not very enlivening at the time but afterwards it seemed funny enough. Finally at 2:40 a. m. we did get back to high camp and sleeping bags and had the satisfaction of seeing the moon rise at the same time.

In conclusion, Mt. Sir Alexander is a first-rate climb by any standard. The southwest face offers the easiest route unless the rocks are ice covered, but the sun acts to keep this face in generally good condition. The difference in snow and ice between the northwest and southwest faces was remarkable. One day's sunlight had practically cleared the rocks. The northeast arête fairly cries to be climbed and anyone reading Donald Phillip's account will be convinced that it offers a fine opportunity. Once on top, the traverse of the ridge will be easy unless conditions are radically different than they were this year.

We used a hundred-foot rope for three of us and in a few places that length was none too much, but for the most part, it was a trouble to handle. In three different parts of the route crampons would have been very useful but we found at Jasper that we had different types and unless the party is equipped alike, there is very little use in carrying them at all. Much of the route had to be cut, anyway, and a large part was easy enough without them. However the hour or more that they would have saved us in the morning, might have allowed us to go across the whole ridge and perhaps tried the descent of the northeast arête if the top did not look too formidable.

The principal thing that one needs in going after these northern mountains is time and lots of it. The weather conditions are too unreliable to depend on rushing matters and if one hangs his whole summer on such an expedition, it would be grevious to fail because of a bad spell of weather at the critical time.

# Early Visits to Mount Sir Alexander

FREDERICK K. VREELAND

THE year 1929 witnessed the first ascent of the most northerly outpost of the higher Canadian Rockies. The conquerors of the peak are Messrs. A. J. Gilmour and N. D. Waffl and Miss Helen L. Buck. Its location[1] is long. 120° 26′, lat. 53° 56′ 30″.

This unfortunate mountain has labored under several aliases in its brief public career. Ever since its first discovery it has been known locally as Mt. Kitchi. This is a Cree Indian name meaning "big" or "great". The linguistic root is the same as that in "Gitchi Manitou", the Great Spirit. The peak is very appropriately called the "Great Mountain", for it is a noble mass of rock and ice, towering above the lower mountains which surround it.

Later a traveler who saw but did not set foot on it, proposed the name "Mt. Alexander Mackenzie". The mountain is certainly worthy of the name of this great pioneer explorer, but the application of his name to it seems hardly appropriate, since Mackenzie was never at any time of his historic journey near enough to see it and presumably he never knew of its existence. A chain of high rugged peaks intervene.

The matter was finally settled by the Canadian Geographic Board, which gave the mountain its official name, "Mt. Sir Alexander", but it will always remain recorded in the hearts of those who struggled in the early days to reach it and climb it, as "Kitchi".

It is a very prominent and noteworthy peak. It dominates the mass of rugged mountains which feed the several branches of the Big Salmon River and which were noted by Dawson as "high mountains capped with snow in August". From the top of the northwest glacier at the base of the main peak, one looks down on the tops of the mountains to the south and southeast as far as the Robson group. Looking north and northwest is a tangle of jagged peaks, of which Mt. Ida is a fitting consort to Sir Alexander. This rough sierra extends northwest for 61 miles to the head of Parsnip River where it dwindles to a rounded range with only one outstanding peak south of Mt. Selwyn, and these are conspicuous only because of their lone-

[1] The latitude as determined by the Canadian Geodetic Survey is 53° 56′ 10.2″.—Ed.

someness. Northwest of the Peace River, the range rises to about 8,000 feet at Laurier Pass and continues to rise to the Lloyd George group, still imperfectly known. When the writer began his work in the Big Salmon group in 1912, the sum total of reliable data was found on Dawson's map, based on Mackenzie's traverse of the Parsnip and Big Salmon Rivers and Jarvis' discovery of his pass. Within these boundaries was a most alluring blank space which the writer proceeded to investigate. This occupied four seasons.

The writer is unable to say who first saw this mountain.[2] Mackenzie certainly did not. E. W. Jarvis, an intrepid explorer for the proposed Canadian Pacific Railroad, passed within ten miles of it in February 1875 when he discovered the pass which bears his name just north of Mt. Sir Alexander. But there are only one or two locations on his route from which the mountain can be seen, and as he made the trip in the dead of winter it is quite probable that the peak was wrapped in clouds, as it is a large part of the time, and that he had no knowledge of its presence. This conclusion is borne out by the fact that he described the next highest mountain in the region, a very conspicuous peak eight miles northeast of Mt. Sir Alexander, and named it, for reasons best known to himself, "Mt. Ida". This name happily has not been changed.

The building of the Grand Trunk Pacific Railway over Yellowhead Pass in 1912 gave access to this country and soon Kitchi, the "Big Mountain", became known. The story of these early days is clearly and tersely told by Donald (Curly) Phillips of Jasper, who is probably the best informed man regarding the country that lies between Jasper and Mt. Sir Alexander and Jarvis Pass. His account is as follows:

"I first saw the mountain the fall of 1912, while on a hunting trip to the headwaters of the Jackpine River. I trapped and hunted in there several winters, but it was the summer of 1914 that Miss Mary L. Jobe, and Miss Margaret Springate, of Winnipeg, got interested in it, and decided to try to get to it. There was no trail down the Smoky those days, but I had opened one down the

[2] R. W. Jones, surveyor for the Grand Trunk Pacific R. R., saw the peak in 1904 and used it in his work, estimating the elevation as 12,000 ft. (*Appalachia*, Vol. xiii, 253). A paper dealing with this region was read at the meeting of the American Alpine Club held in Philadelphia, January 2, 1915.—Ed. *A. A. J.*

Jackpine and knew I could get pretty close to the mountain via that route although it was a rough one".

[Mr. Phillips led the party including Bert Wilkins, north, along the mountains above treeline until they reached the Black Bear River where they left the horses and covered twenty miles to the mountain on foot. They ascended the east glacier of Kitchi to the snowfields and made two attempts to climb it but were frustrated by bad weather and failing supplies.—Ed.]

"The following year (1915) Miss Jobe got another party together, consisting of herself, and Miss Caroline Hinman of Summit, N. J., and the three Tyler boys, John, Arnold and David. We had sixty days ahead of us and with twenty-three head of horses and plenty of supplies were able to do quite a bit of exploring around the mountain. I had Frank Doucette as assistant packer, and Joe Soper as cook.

"We utilized the same route to the head of the Jackpine, and then worked more to the east across the head of the Muddy and Sheep Creek and there picked up and followed the old Indian trail, known as "the mountain trail to the Peace." When we got opposite Kitchi we left this trail and crossed over a low divide into the B. C. side, and camped in a big meadow, at the Northeast side of Kitchi, the same place the party camped this year when they climbed the mountain.

"We made an attempt on the N. W. corner first, Doucette, John Tyler and myself, but it was too steep and dangerous, and after getting about half way up decided to give it up. A week later we tried the N. E. ridge, and got up to the cornices close to the top, when a storm came on and drove us down again. Those cornices all overhung on that corner, and we could not have gotten over them anyway, but we might have made a traverse along the slope and found a break some place if the storm had not come up when it did.

"I think it was about the summer of 1912 that Fay got out to the little pass beyond Surprise Lake on the Porcupine River, and saw the mountain from there. In 1914 they went past it on their way to the South Pine, and Peace River. They spent a few days in that vicinity, and named some of the lakes and peaks, bestowing the name of Alexander Mackenzie on the big mountain although they had not been on it. When Miss Jobe got back to civilization she attached the name of Kitchi to it, and estimated the height at not over 11,000, while they claimed it as 12,500. We had been on it,

*Photo. F. K. Vreeland 1916*

MT. SIR ALEXANDER (RIGHT DISTANCE) AND WHALE'S HEAD GROUP FROM BIG SALMON RIVER

*Photo. F. K. Vreeland 1916*

"WHALE'S HEAD" GROUP IN THE ANGLE BETWEEN THE KITCHI AND JARVIS FORKS OF THE BIG SALMON RIVER, FROM THE WEST.

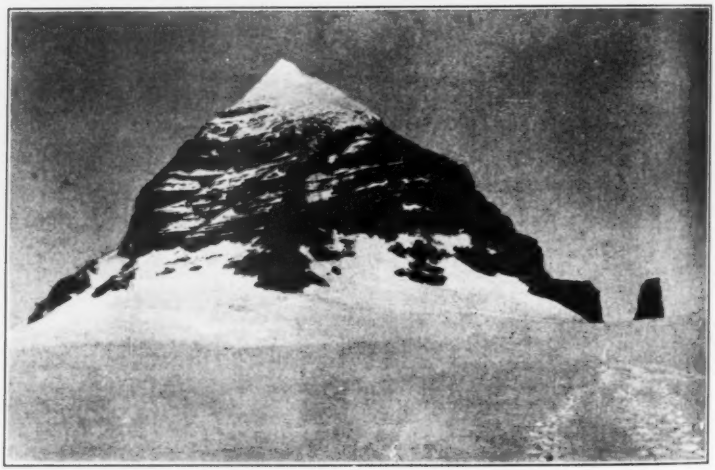


*Photo. F. K. Vreeland 1916*

FIRST FOOT-PRINTS ON TOP OF KITCHI GLACIER BELOW WEST FACE OF THE MAIN PEAK, WHOSE SUMMIT IS 1,500 FEET ABOVE.

and knew that it was not as high as it looked, and the boundary surveys I believe cut it still lower than our estimate. This mountain can be seen from up in the Grand Prairie country and the Indians call it 'tepee mountain'."

All of these parties approached Mt. Sir Alexander from the southeast, for most excellent reasons. In that part of the range the rock strata dip sharply to the east, with the result that the eastern foothills are rounded, wooded and comparatively easy to travel with horses. The west slope is broken into a tangle of rugged peaks, separated by narrow valleys, through which travel with horses is well-nigh impossible. While access to the mountain from the southeast is thus easy, the final attack is difficult, for this face is an unscalable precipice, dropping off into a good-sized glacier. From the east the mountain can be reached only by back-packing over very rugged foothills. The approach from the northeast, which was used in the final ascent, is by no means an easy one.

The rough termination of the more obvious line of approach makes it harder than it looks and helps one to understand why Fay and Cross never reached the mountain, why Miss Jobe and Curly Phillips had a hard struggle to get on it at all, and why Phillips himself after years of study of the mountain succeeded only in climbing the northeast arête to a point where an impassable snow cornice blocked him.

The writer's approach to the mountain was made from the northwest in 1916. This was rendered possible by the fact that we travelled light, just two of us in a canoe, which we worked up the rapid mountain streams as far as it would float and then "siwashed" with back-packs. This 1916 trip was the culmination of four years of exploration in the mountains between the Fraser and Peace Rivers, beginning in 1912.

The first year's journey included a 1,400 mile circuit, starting from Yellowhead Pass, through the Fraser, Crooked, Pack, Parsnip and Peace Rivers to Peace River Crossing with a side trip to Laurier Pass. The second was a reconnaisance of the canoe route from the Fraser River up the Big Salmon River (now McGregor River). On the third we pushed our way up the Parsnip River to its source in the glacier which Mackenzie saw from a distance and described as "a great valley filled with snow, which must be several hundred feet deep." From the mountains above this glacier we sighted a great ice dome of very extraordinary formation, practically the whole top of the mountain being covered with ice form-

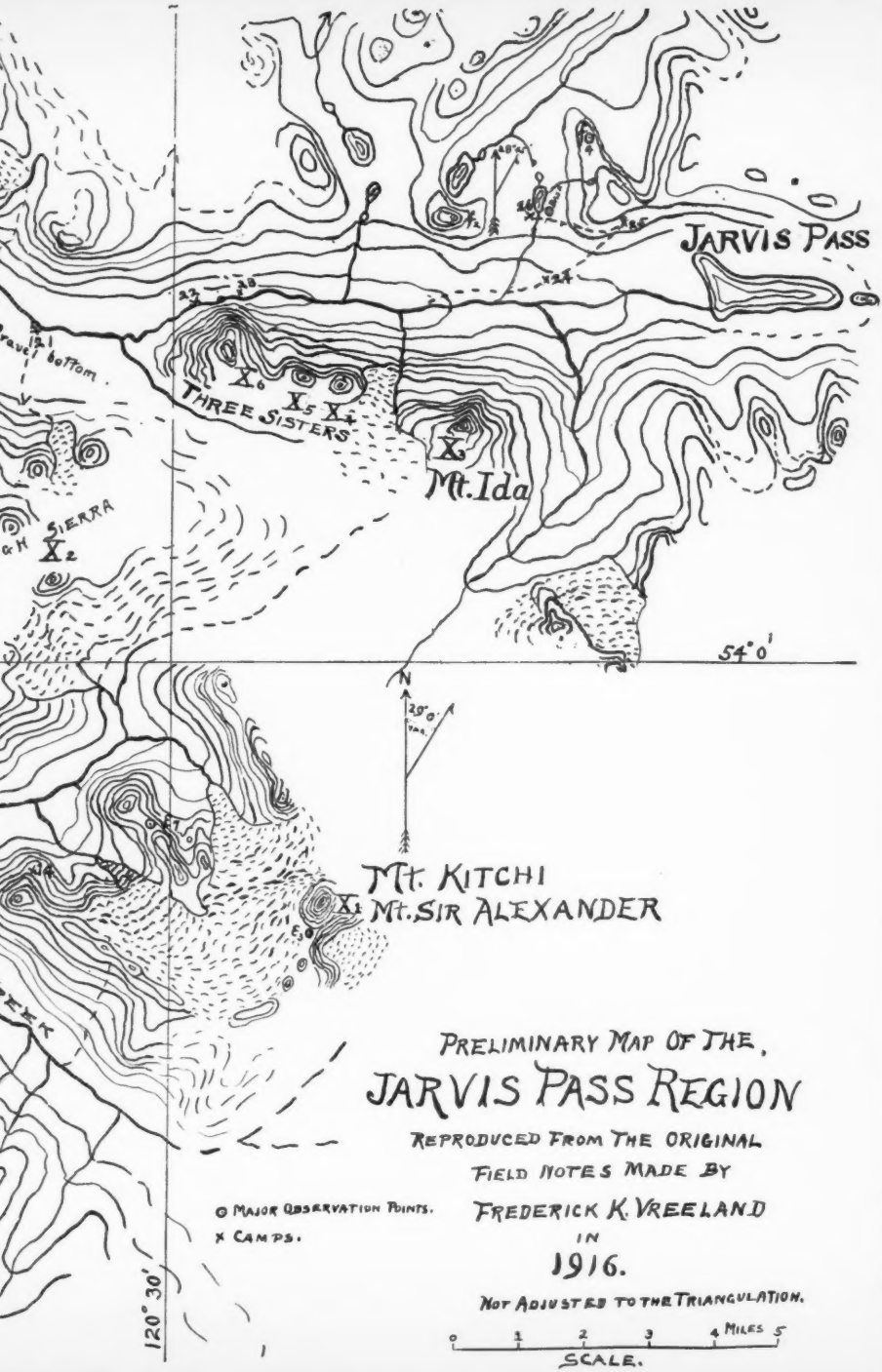
ing flowing glaciers on all sides. After locating it in long. 121° 9′ west, lat. 54° 25′ north and following Mackenzie's route over the "Bad River" divide to the North Fork of the Big Salmon (now Herrick Creek), we succeeded in climbing the great ice dome. Here we caught our first glimpse of Mt. Sir Alexander, 45 miles away to the south east. The dome (7,800 ft.) rises a mile above the river.

The knowledge of the waterways gained on these trips enabled the writer to plan the approach by canoe to "Kitchi." In the following year, 1916, we started from Urling on the Grand Trunk Pacific Railroad, dropped down the Fraser River to the mouth of the Clearwater (now Torpy Creek) which we ascended to a point where we could make a seven-mile portage across to the South Fork of the Big Salmon River (now McGregor River). We then worked our way up this to the fork. The north branch rises in Jarvis Pass and the south branch drains three sides of Mt. Sir Alexander. The approach to the latter from this side is very impressive. It dominates a mass of exceedingly rugged peaks in the fork of the stream, the entire slope of the mountain almost to timber-line being covered by a glacier. Above this rises the final peak, which is in the form of a truncated pyramid.

My companion, Sigurd Susag, a young homesteader from the Fraser River, was a good canoeman and by dint of prolonged efforts we pushed the canoe up the east fork of the south branch to a point northwest of the mountain and close to its base. We selected for our high camp a spur just at timber-line in a most beautiful location, commanding the slope of the glacier, its cascading and avalanching front and the peak towering above. We spent ten days working from this camp over the entire northwest slope of the mountain, and climbed the glacier to the base of the final peak, 1,400 ft. below the summit. From this point we were fortunate in getting sights of Mt. Robson, tying our four years' surveying to a base which had been definitely determined by Wheeler's excellent photographic survey.

We made no attempt to climb the peak, not having even an ice-axe, but the writer was satisfied that a party properly equipped could accomplish the ascent, working their way over the ledges on the northwest side to the ice-cap, which here offered an unbroken approach to the summit. It was therefore with extreme interest that I learned that Messrs. Gilmour and Waffl and Miss Buck planned to make the ascent, and it was a great satisfaction to hear that they were successful. The approach from the northeast, which they chose,

GREAT ICE DOME
24 MILES
30°0' MAG.
B MTNS.
B1
B2
B3
C1
W GROUP
RUGGED SNOW MTNS.
W1
Rapids
Gravel bottom
JARVIS FORK
VERY ROUGH
X1
X2
GRAVEL BOTTOM
SOME L. P. PICKS
33
16
KITCHI FORK
MANY ISLANDS
X31
X32
BIG SALMON R.
SOUTH BRANCH
X34
A1
A2
A3
BEAR CREEK
PORTAGE TO CLEARWATER
TONERUAH PEAK
58°40'
23 MILES
29°30 MAG.
E. FORK CLEARWATER
A MOUNTAINS - ROUNDED




PRELIMINARY MAP OF THE

# JARVIS PASS REGION

REPRODUCED FROM THE ORIGINAL
FIELD NOTES MADE BY
FREDERICK K. VREELAND
IN
1916.

⊙ MAJOR OBSERVATION POINTS.
X CAMPS.

NOT ADJUSTED TO THE TRIANGULATION.

0 1 2 3 4 MILES 5
SCALE.

is much more rugged and difficult than that which we followed and the achievement is a noteworthy feat in mountaineering.

There is another thoroughly worthwhile climb in that region, namely Mt. Ida. After leaving Kitchi we dropped down the stream again to the fork and followed the North Fork to Jarvis Pass. From there we had a glorious view of Mt. Ida, which from this side is a very sharp and steep peak resembling Mt. Assiniboine. This north face, which rises precipitously from the valley 6,500 feet below, is very impressive but unscalable. There is, however, a way around, and I believe that some day this mountain also will be climbed.

# Reflections On Guideless Climbing

Noel E. Odell

"THE mountains are so kindly and so great that they reject none of those who turn to them, and they are good to all; to the men of science who come to study them; to the painters and poets who seek an inspiration in them; to the sturdy climbers who zealously seek violent exercise, and to the weary who flee from the heat and the turmoil of the city to refresh themselves at this pure source of physical and moral health." Such was the verdict of that great mountaineer and poetic thinker Guido Rey. And the same true thesis applies to mountains the world over and of all magnitudes.

From all high places of the earth there is to be derived just that store of refreshment and recreation so yearned for, consciously as well as unconsciously, by the large sections of modern populations pent up under urban and industrial conditions. And it is this class of manhood and womanhood that comprises the bulk of our modern alpine and climbing clubs throughout the world. Exiled during the greater part of the year from the sight of much else than bricks and mortar, and entrapped perchance daily within the confines of noisy train and dismal office, even though access to the open, tamer expanse of the country may occasionally be vouchsafed—it is they who, unable to resist the inner impulse, that hidden flame perhaps once lit long ago when fortune revealed to them the vision, make headlong for the high hills, there to worship in varied fashion, but in no uncertain earnestness, at the shrine of Nature so remotely removed from many modern cities.

Earlier mystical philosophers undoubtedly were drawn to the mountains, fully conscious of the spiritual benefit to be obtained by sojourn and solitude amongst the sublimest of Nature's works; but these were necessarily men of predominantly contemplative habit, dreamers or sentimentalists mainly from religious house or from oriental clime, in whom was no desire to test their strength and nerve on fretted summit and ice-slope. The few who earlier than the 18th Century ventured in Europe to pit their skill against the might of the mountains were in truth 'rarae aves,' who would, in consideration of the "useless folly" or "insanity" of their pursuit, be subjected to an even greater amount of incredulity and ridicule than has

in more recent times been accorded to advanced followers of the creed. Such of the former were men like Petrarch, Gerner, and Professor Josias Simler of Zürich, the latter figure being of considerable historical interest to mountaineers, since his writings give us first mention of the rudiments of the art of snowcraft as early as the year 1574!

We have to wait until the mid-19th Century to see the advent of a community of virile men and women ready to hold strenuous converse with high mountains, its spirit of romance and adventure restive under the conventions and restrictions of growing cities, yet imbued with a more practical philosophy than that of the earlier mystics. They laid siege to the Alps in particular, a region geographically accessible to the large centres of commerce and industry, and as the years went by and devotees increased, the greater summits were one by one attained. It was the invariable custom for these travellers to be accompanied by local peasants, often mountain hunters, who, as time went on, became recognized as professionals with expert knowledge of the peculiarities of the ascents, and with whom it was deemed inadvisable if not impossible to dispense.

Before long, it was realized by the most keenly active of this band of mountain knights and worshippers, that there were within easier reach of home, just the means, though in miniature, of practicing and keeping acute one of the most important weapons of their warfare. The rock bastions and crags, of Britain particularly and of some other Continental countries too, though built on much smaller lines than those of the Alps, were albeit speedily found to yield ways of ascent that could only be accomplished by the exercise of the greatest skill, and the development of an advanced technique. Moreover, it was soon evident that, apart from rock-climbing, it was possible in addition, during the winter, to obtain conditions of ice and snow sufficient to test the mettle and capabilities of the highest exponent of ice-craft.

But the cult of rock-climbing for its own sake may perhaps be said to have had its inception during the early years of the present century. Gradually, as time has gone on and a deliberate and specialized style has been evolved, local rock climbing has claimed the attention not alone of ultra-gymnasts, but of many with confirmed Alpine habits and propensities. It may well be, like some other forms of human activity, a specialization, often with confines artificially imposed; yet, on the other hand, the mountain devotee may be eco-

nomically debarred from all but the indulgence of climbing on his own home rocks, his resources not allowing of his visiting the more distant Alpine ranges.

In general, however, it may be stated that the specialization of rock-climbing is only the result of natural development, or evolution. For, as Mr. Arnold Lunn has said with much truth and succinctness, *à propos* of the broad issue of mountaineering specialization: "Mountaineering in its ultimate essence is not merely mountain travel. It is a duel between inanimate nature and the spirit of man, and the first duty of the mountaineer is to preserve the reality of this contest. A virgin peak is a problem, but once the peak has been proved climbable, new conditions must be introduced in order that the struggle, which would lose all significance if its outcome were certain, may be renewed with redoubled zest. Guideless climbing, the forcing of virgin ridges on peaks which are no longer virgin, winter mountaineering, and ski mountaineering, are all modes of the same mental attitude. Difficulties, artificial difficulties if you will, are invented in order that the game may continue, for a game in whch one side is assured of a walk-over will soon cease to find players."[1]

Surely this should be a sufficient answer for the most pragmatic sceptic, who asks the purpose of a cult that toys with danger or invites annihilation, and who prefers the demoralizing motto "Safety First!" However, "mountaineering means different things to different people," and while rock-climbing for its own sake can satisfy the most exacting demands of the gymnast or acrobat, the circumstances and surroundings under which the pursuit is conducted are likely to make a definite appeal to those of healthy philosophic proclivity. For our smaller hills are often no mean hills, and in season have most of the attributes and all of the proportions of real mountains, and mountain lore in many of its varied and fascinating forms can be indulged by pilgrim, student, and mere visitor.

This matter of the historical background of rock-climbing in Europe has been especially emphasized as being the parent in large part of the modern practice of guideless climbing on the higher glacerized ranges, particularly the Alps. The rock enthusiast, perhaps with some years of experience and the attainment of a very high standard of skill in his specialized code, with resource and self-reliance

[1] *British Ski Year Book*, 1926, p. 563.

engendered by leading his own expeditions entirely without professional assistance, at last finds his way to the Alps. There, with a confidence born of experience on smaller, harder passages at home, he essays those peaks where rock-climbing is the sole or predominating craft. Should he have climbed under winter conditions on his home hills, then the encountering of icy and snowy passages will but offer the more variety to his rock-craft. He will find the lesser Alpine peaks, the 'smaller fry', in numerous cases surprisingly easy and not sufficiently exacting to test his powers and skill. And then naturally, as sure as fate, if he has any "stuff" in him at all, (and should it be a season of good weather and conditions and not, let us hope, his first visit to the Alps) he will be tempted to try the 'bigger fry', the greater peaks, and those involving far more in speed, in continuous endurance, and all-round mountaineering knowledge. He may, and possibly in numerous cases will, succeed in reaching his objectives, and, if he goes about his self-tutelage in snow and glacier craft in the right way, he will quite early attain an all-round proficiency, directly proportional to his own inherent ability.

On these lines, not a few young mountaineers have, during the last two or three decades, acquired their training and accomplishment in all branches of the craft. Many of them have scarcely climbed at all with guides, and yet have carried out expeditions involving as high a degree of skill in ice-craft and rock-craft as any ever accomplished by professionally led parties. By reason either of the psychology of the case involving the individual's independent outlook on his pursuit, or perhaps on account of obligations of economy, he has from the beginning dispensed with guides, though from the best of them he might no doubt have learnt the rudiments of the art of ice and snow work, in any case, more quickly, and probably more thoroughly, than on his own responsibility. For it must be frankly admitted that as far as ice-and-snowcraft is concerned, few amateurs have acquired its finer points except at the hands of professionals. Yet be that as it may, unfortunately such amateur climbers, who have been content to serve their gradual and reasonable novitiate on lesser peaks before essaying the more, and indeed the most, arduous ascents, are all too few.

To that brilliant climber A. F. Mummery is often attributed the distinction of having broken away from the prevailing tradition of climbing with guides. Historically however it is perhaps more correct to say that by his guideless ascent of Mont Blanc the

Reverend Charles Hudson, who lost his life in the tragic, and more than amply guided, first ascent of the Matterhorn in 1865, may be called the "Father of Guideless Climbing." But whichever may rightly hold the title, each in his time, before assuming the responsibilities of conducting his own expediton, had spent several seasons of apprenticeship behind first-rate professionals and, by this, as well as by natural aptitude had necessarily acquired a high degree of skill and resource.

What do we find nowadays? We find, as has been rightly said elsewhere, that "the High Alps are overrun by incompetent guideless parties who have not learned even the elements of mountain craft, and whose sole qualification is an enthusiastic desire to emulate the deeds of expert mountaineers. Many guideless parties coming straight from civilization arrive in the Alps out of training and unacclimatized to altitude; they possess little reserve of stamina and energy to be called upon in the event of any emergency requiring a sustained effort, and they are often insufficiently clad or equipped. Mountains do not suffer fools gladly; hence the accident list, which now runs into hundreds of casualties every year."

Perhaps as an aftermath of the Great War, to which it is the fashion nowadays to ascribe so many troubles and problems, there seems to have been a large increase in competitive climbing and ascents made merely to emulate the hairbreadth escapes and successes of other parties, or what is worse, the escapades of solitary climbers. Perhaps in the opinion of some "c'est magnifique"; we may add "mais ce n'est pas de l'Alpinisme." In the recent words of a statesman, "one grows tired of the modern cult of success," the boomed records, and the advertised stunts. And who can say that alpinism has not been afflicted with these elements, which are not so much a necessary stimulus to courage and high endeavour as a canker in our midst at the present time?

And this is not to throw a damper on initiative and adventure, which never were so necessary as in our present state of excessive civilization. If we need anything in these days of indulgence and comfort, we need a pursuit that calls forth the best of our mental and physical faculties in an atmosphere of adventure and romance. And where, we flatter ourselves, can we find any that provides such a plethora of emotions and sensations for our quickening, as on the grim precipices and the sky-borne heights? Moreover, it is undoubtedly a fact that only in leading and conducting his own expedi-

tions can the mountaineer develop to the full all his faculties and sensitivity.

Linked to a first-rate guide during his novitiate, the traveller will no doubt the more quickly, and perhaps the more thoroughly, acquire a large portion of the technique of mountain craft, i.e. particularly a seasoned judgment as to avalanches, the condition and reliability of the snow, and what not; but it is not until he is faced with the responsibility of conducting his party safely over a complicated mountain terrain, very possibly in bad weather, that he realizes the full import of the game: he himself, perhaps more or less unsupported, versus the combined forces of Nature.

Frankly the writer is not one to deprecate the practice of guideless climbing 'ab initio' by the aspiring alpinist, if only the game is played fairly and squarely, and not with the abandoned recklessness and disregard for all graduation in the school of experience that has been so prevalent of late in the Alps. Even the ignominy of eventual rescue by professionals, seems not to have impressed many unfledged acrobatic youngsters, who have been pounded and marooned in places where they ought never to have been until two or three seasons more of experience were behind them. The whole trouble rests with excessive ambition and impatience of serving a due novitiate. An earlier training in home rock-climbing will, as it has been said above, be an immense asset to the alpine aspirant, but this on the other hand easily tempts him to neglect that all important and so oft forgotten branch of our craft, namely mountain reconnaissance. A day or more, according to the particular region, cannot be more profitably and pleasurably spent than in careful examination of the several aspects of a mountain face and the various suggestive routes as seen from distant points of vantage. This is obviously as important with rock peaks as with those involving ice and snow, and is as beneficial for one's instruction in the case of minor peaks as with Alpine giants, and indeed whether they be seamed with known routes or not. When the guideless leader has duly gained his experience of *all* branches of the craft on the lesser peaks during his first several seasons, and this must clearly depend on his individual ability and capacity, he may justifiably essay the higher summits, or those involving greater skill and endurance. But it cannot be too strongly impressed that before embarking on such higher courses he should have had ample opportunity to judge of his companions' ability on less exacting excursions. Too often an experienced amateur has got

into difficulties on some high ascent through one or more of his party being less than a novice. Probably there are few amateurs who have such reserves of physical strength and resource to meet emergencies as Alpine guides.

Guideless climbing has, with some notable exceptions, tended to interest itself more and more in recent years with the forcing of difficult routes up rock peaks, and though many brilliant ascents have been admirably carried out, which have, perchance, involved a modicum of ice or snow, the real importance of ice-and-snowcraft has in comparison tended to be slurred over. But the mastership of the latter is equally as important to him who would call himself mountaineer, and there is more than sufficient in its acquisition to engage the guideless climber during his whole career.

How often in our youthful passion for adventure and sensation do we impulsively conclude that it is mainly, and perhaps only, in the rock-climbing branch of mountaineering that the real thrills are to be obtained; that ice-climbing is a frigid and unsatisfactory pastime; and that snow-work is mostly unmitigated boredom! Much has been written on the philosophy of mountaineering in its various aspects, but to the mind of the present writer one of the most significant and timely "outbursts" appeared last year from the pen of a former climbing companion.[2] Herein can be seen the process of complete conversion of the egregious doctrine of the ultra-rock-specialist into the mature and mellow philosophy of the mountain seer; the passionate appeal to followers of his own erstwhile narrow cult not to perjure themselves by excessive devotion to a mere limited recreation; the call while there is yet time, and ere "the years that the locusts have eaten are irretrievable", to take a wider vision and a truer perception of what really matters in a pursuit which to most of us may become nothing less than a genuine and trusty religion; and finally, and perhaps of chief import, an imprecation to spurn the demoralizing lapse into a comfortable and unadventurous type of mountaineering, but rather to adopt the vigorous and stimulating motto, "Toujours l'Audace!", for our own moral and spiritual salvation.

Mummery in the last chapter of his classic book[3] describes the true mountaineer as a wanderer, in the sense of one who loves to be

[2] "Climbing Philosophy," by C. F. Holland, in *"The Climbers' Club Journal,"* 1929, New Series, Vol. IV, No. 1.

[3] *My Climbs in the Alps and Caucasus.*

where no human being has ever been before, who attempts new ascents, and who equally, whether he succeeds or fails, delights in the fun and jollity of the struggle. And this be it noted (in spite of sundry expressions of opinion amongst certain of our specialists in craft) must apply to all branches, whether the exploration be of a forest-girt virgin summit, approachable only after weeks maybe of laborious packing, or on the other hand, the scaling of some beetling precipice by the most artificial and sensationally acrobatic 'variant.' The same theme has been well expressed lately by Mr. G. W. Young,[4] than whom in the knight-errantry of mountaineering none deserves a more attentive hearing: "And we ourselves know at heart that by a mountaineer we mean fundamentally, one who has the *feeling* for mountains, who has the undefined and unreasonable impulse to see mountains and try conclusions with them at any season and in every fashion; and that he has the best understanding of mountaineering to whom any and every method of approach seems equally sympathetic, provided that the motive be a genuine desire to be among hills, and that the object remains the mountain and not a personal vanity of success in one or the other technical fashion of approach." Many by nature and attribute will be specialists in all walks of life, but as true mountaineers should we not take the larger view of our high calling?

For "the mountains are good to all;" the languid and the robust, the specialist and the more catholically minded, are each entitled to ask whatever they require of them in proportion, for their inspiration and restoration and most active operation, whether it be quiet contemplation, less strenuous roving, or more hardy climbing. In the mountains at any rate they will all be enabled to rise above "the foul miasmas that cling to the lowest bottoms of reeking valleys."

[4] Foreword to "Climbs and Ski Runs" by F. S. Smythe.

# The Wind River Range in Wyoming

KENNETH A. HENDERSON

IT is not generally appreciated that in Wyoming is to be found one of the most alpine regions of the American Rockies. In fact to one who has visited the western mountains elsewhere the sight of the great glaciers and snow slopes of the Wind River Range is astounding. This, one of the least known parts of the Rockies, was strangely enough one of the first explored and best known to the early travellers. The usual fur trade route to Jackson Hole and the Snake River led up the valley of Wind River on the east and across one of the several passes at its head. The other alternative route, which later became a part of the famous Oregon Trail, led across South Pass at the southern end of the range and thence up Green River on the West.

The range itself had been visited by the trappers and was well known to them when the first government exploring expedition appeared in 1842 under Capt. Frémont. On August 15th of that year he with five companions accomplished the ascent of the, as he terms it, "highest point in the range." Actually this peak, which now bears his name, is the second in altitude, being surpassed by Gannett Peak about five miles north. He determined the altitude barometrically at 13,570 feet, which is 140 feet too low according to modern U. S. G. S. measurement. From Col. Long's measurements of the peaks in Colorado and the opinions of various traders, he thought he had ascended the highest point in the Rockies. This is the first recorded ascent in the main portion of the chain.

In Sept. 1833, Capt. Bonneville made an ascent from the valley of the Popo-Agie River which, from the description he gave, is believed to be that now called Wind River Peak. This, however, is in the more southerly and less alpine section. For many years, the mountains which he and Frémont ascended were considered to be identical but later history has given due credit to each.

The trappers and traders were not interested in the mountains except as obstacles to be overcome, so that for many years we hear nothing further of this region. It was not until the government survey parties of the Seventies that any further climbing was done. In

1878, James Eccles, with the Chamounix guide Michel Payot, accompanied Dr. Hayden's party for the survey of the territories. On August first, he with Payot, Hayden, and two others climbed a peak at the southern end of the range near South Pass, probably Wind River Peak. On August seventh, he, Payot and Wilson climbed Frémont Peak by the west face from the amphitheatre to the south. He characterizes it as a short and easy climb. They reached the summit at 10 a. m. and found no trace of a previous ascent, but stated that a peak about four miles to the northwest appeared somewhat higher. That was the extent of his climbing that summer although he made an attempt on the Grand Teton later which failed through lack of time.

After that, climbing apparently lapsed for over forty years until about 1920 when several parties journeyed into the range for exploration. Among these must be numbered that of Mr. A. C. Tate, who finally, in 1922, accomplished the first ascent of Gannett Peak, the highest summit. On August 24th of that year Messrs. J. Wyman, A. E. Bent, and E. P. Jackson climbed a peak at the head of the Dinwoody Glacier which has been designated as No. 4 in this article.

In 1924, Messrs. Carl Blaurock and A. R. Ellingwood made the first ascent of two peaks to the south of Gannett which we shall for convenience call Nos. 1 and 2. They also made the first ascent of Mt. Helen and a new route on the north face of Frémont. In 1926, Mr. Ellingwood made the first ascent of the unnamed peak between Mt. Helen and Frémont Peak, also of Knife Point and a peak to the west of it.

I had visited the range in 1927, and although unable to make any climbs, had come away with the distinct impression that here was to be found one of the best climbing centres in the United States. The mountains were fairly high, thirteen to fourteen thousand feet, of good rock, and well surrounded by glaciers, so that the climbing should be varied and interesting.

Early in July 1929, H. S. Hall, Jr., R. L. M. Underhill, and myself met at the C. M. Ranch near Dubois in the Wind River Valley to pick up our pack outfit for the trip to the glaciers.

The first day, we went by car as far as the end of the road up Torrey Creek and then assumed the undignified and at times pained attitude of the mountaineer on horse-back. We then climbed steeply up the right wall of the canyon to an immense alp above the East Fork of Torrey Creek, which led by an easy pass to an equally

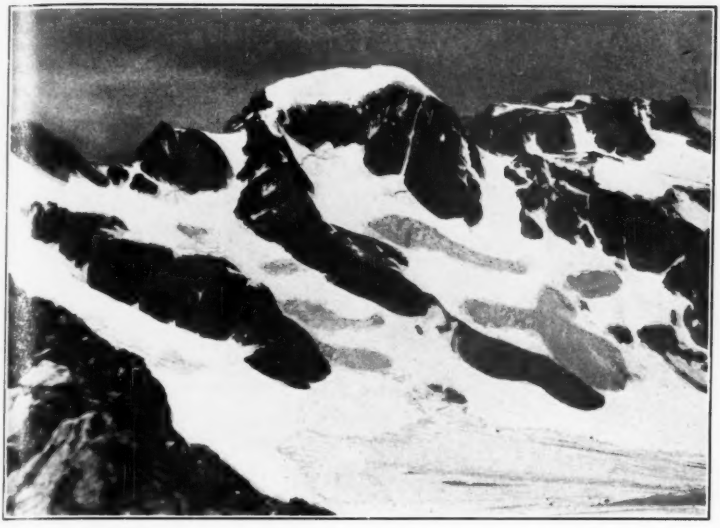
immense alp sloping toward Dinwoody Creek. At the edge of the timber above the Dinwoody Lakes, we camped for the night.

The next day, we wound down through the Dinwoody Lakes, past Honeymoon Lake to the creek itself, just below the forks. We then proceeded up the South Fork to our camp-site at the head, where we arrived about two o'clock. Underhill and I immediately started out to climb the left wall of the canyon to obtain a view of the north-east face of Gannett. After a climb of about two thousand feet, we reached a minor summit which gave us a view of the whole cirque to the north and east of Gannett. The upper part was completely covered by a large fan-shaped glacier which flowed down to a snout at the bottom, and discharged into the South Fork.

There appeared to be no difficulties, unless the last thousand feet, which was very steep, should prove to be bad snow, so we decided upon an early start the next morning.

July eleventh marked the date of our first climb. We woke up the cook at an early hour and after a good breakfast and a few preliminary shivers we got away at 5:35. In the half light of the dawn, Hall led up along the creek by a route which he had explored the previous afternoon to the moraine of the glacier, where we arrived an hour later. We ascended the glacier, passing on our right a large rock island, to the foot of a steep ascent of perhaps a thousand feet. Here, we roped at 8:30 chiefly because Underhill was tired of carrying the rope. To the bergschrund at the base of the final peak it was sheer drudgery. The bergschrund was a sort of double-ended affair which although of considerable size, proved very easy to negotiate. We climbed up on the left and then traversed to the right across the badly split upper bergschrund. There were several bridges, most of which seemed quite solid.

Above the bergschrund, the slope rapidly steepened until it assumed an angle of fifty degrees. The snow was a hard, rotten, granular *névé,* very bad but sufficiently compact to hold our weight. Progress was slow, as we were all tired and the exertion of kicking steps was beginning to tell. We headed directly for the summit, traversing to the left and avoiding a snow passage through a band of rocks. Then taking to the rocks we proceeded diagonally upwards to the left to the summit cupola. The rocks proved to be so badly broken by frost that great care had to be taken not to start an avalanche. Probably the hardest part of the whole climb was the first fifteen feet above the rocks. The snow was so steep that hand-



*Photo, K. A. Henderson*

GANNETT PEAK (13,785 FT.) FROM PEAK NO. 2.
Across Dinwoody Glacier.

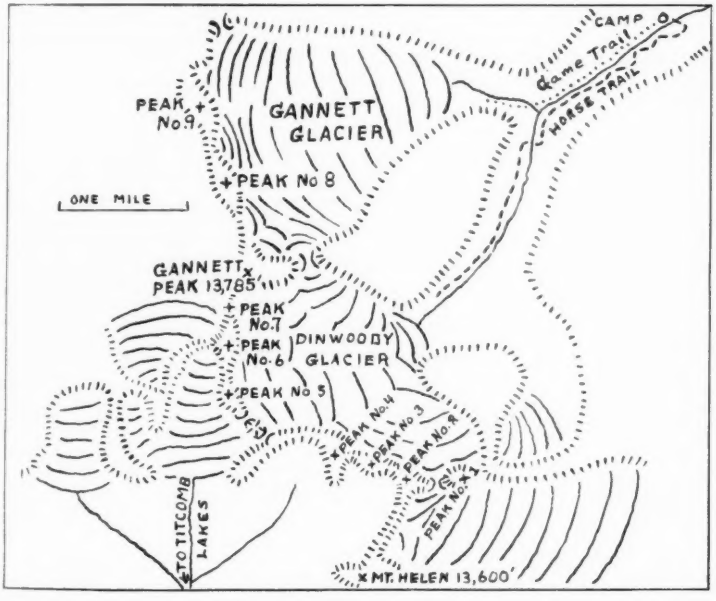



DIAGRAM OF WIND RIVER MTS. HEAD OF SOUTH FORK
OF DINWOODY CREEK.
(From U. S. G. S. Map)

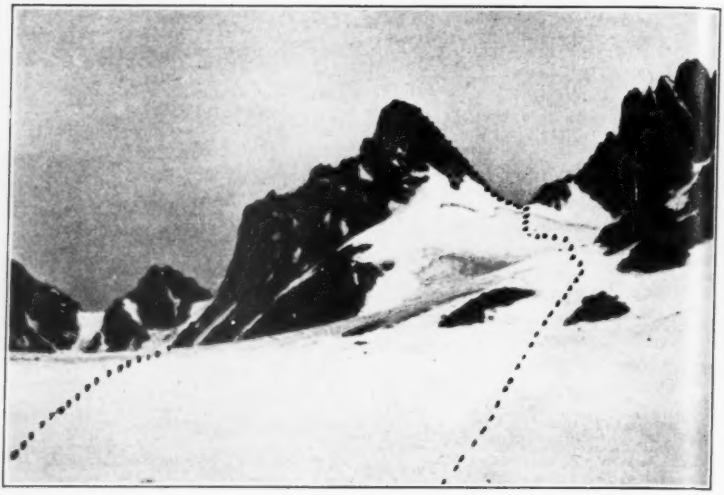


*Photo. K. A. Henderson*

PEAK NO. 5 FROM THE DINWOODY GLACIER.

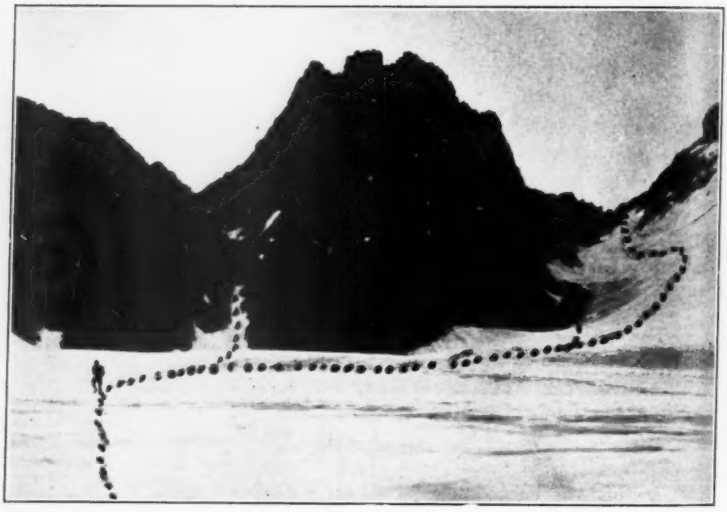


*Photo. K. A. Henderson*

PEAK NO. 1 FROM DINWOODY GLACIER

Dotted line from right to left indicates route of 1929 party.
Dashed line that of Ellingwood and Blaurock in 1924.

holds were necessary, and much worse than below. We finally waded, plunged, and staggered across the top of the cupola knee-deep or more in rotten snow (which recalled to me Whymper's account of the ascent of Chimborazo) to the summit of Gannett (13,785 ft.). We reached it at 12 o'clock just in time for luncheon.

The whole Wind River Range lay stretched out beneath us, but what surprised us most was the vast array of peaks and glaciers to the west, of which the map gave no hint. Owing to a slight smoke haze, the Tetons were practically invisible. After an hour on top, we hastened down the usual route on the south side in order to get off the summit before the arrival of an approaching thunderstorm. On the rotten rocky ridge, a small shower of rocks hit Underhill on the head causing him to see gold, silver, and vermilion stars. But neither this nor the swamp-like condition of the glacier stopped us from regaining camp by six o'clock in time for the excellent dinner our cook had ready.

After a day of rest, Underhill and I left camp at 10 a. m. under dubious conditions for another climb. We tied up the horses a few hundred yards below the Dinwoody moraine, and started off afoot in a heavy sleet storm. On the more level part of the glacier the sun came out so that we progressed somewhat more cheerfully to the col between peaks No. 1 and No. 2. Near the col, a maze of crevasses forced us high up on the slopes of the second peak, but the view from the top was inspiring; behind lay the great expanse of Dinwoody Glacier with Gannett Peak looming up beyond, while through the notch could be seen the vast system of snowfields stretching away toward Frémont.

We sunned ourselves for an hour on the comfortable rocks above the col, finally starting for the ascent of peak No. 2 at 3 o'clock. A short advance soon showed us that we should not have time enough to climb the mountain and traverse the next two beyond it that afternoon, so we turned back to assault peak No. 1 which stood out alone to the east of the col. We started up the ridge and then traversed left into a couloir where we stopped at a snow patch for a drink and some food. Here we turned back toward the ridge up a subsidiary couloir which we followed a short distance until we saw that it would end in an overhang, whereupon we took to the slabs on our right. These were very steep, practically vertical, but with holds sloping inwards. Underhill led up there gallantly until we arrived at the ridge which at that point was so sharp that we could sit astride

it and look down a thousand feet on either side. A difficult twenty feet followed, partly on the crest and partly on the left side, until we reached easier ground.

We could see the summit not far off and considered that our troubles were over, when the rims of my snow glasses began to crackle and the rope to hiss. As the crest of a sharp ridge is no place to weather a thunderstorm, we lost no time in scrambling down a convenient gully to the shelter of some overhanging rocks where we tied ourselves in and awaited the storm. It came rapidly, with stinging hail and piercing cold. It was brief, however, and soon we were on our way up the steep rocks to the summit (*ca* 13,500 ft.) which we attained at six o'clock in spite of all delays. There was a cairn but no record. We stayed for only a few moments for pictures and then hustled down. A couloir which seemingly led straight to the glacier invited us, but we did not trust its innocent appearance, so we scrambled over and around innumerable gendarmes on the east ridge to the col at the northeast end of the mountain, which we reached at seven o'clock. We found out afterward that the couloir was the route of ascent and descent of the first and only party to climb the peak. At eight, we dragged ourselves into the saddle and gave the horses their heads to find the way back as best they could. In the gathering dusk and gloom they brought us safely to camp in less than an hour, although at the end they showed more desire to join their fellows at pasture than to take us to the beckoning camp-fire.

The next day, Hall joined us on a late start at 8:20 for an attack on the three peaks Nos. 2, 3, and 4 which we had given up the day before. We used our new equestrian approach and found it highly satisfactory. Our tracks up to the col had melted out, so it was necessary to make new ones, but at 12:10 we were there. We made a long halt for lunch and general recuperative purposes, but at 2:30 p. m. started the attack. At the first overhang where the 1924 party had turned to the left, traversing into a couloir and then up, and we had tried, the previous day, to turn to the left by climbing up a series of twisted and folded gneisses, we now traversed to the right and slightly up, to the bottom of a wide ice-filled but snow-covered couloir. We decided that Hall after his experience on Mt. Logan liked snow climbing so he was invited to kick steps up the gully. He stepped out manfully to perform this task when, without warning, a great mass of slush and water poured down the center. After

it passed we crossed the gully and worked up a comb of snow to a small rock outcrop where we traversed a second division of the gully to the right to some rotten rocks on the farther edge. Up these we worked to the large snow patch near the top which led us to the summit rocks (13,720 ft.). Here we found the cairn of our predecessors, but no record. We looked down upon our peak of yesterday and took in the whole range from Gannett to Frémont, and even further south. The Tetons were dimly visible in the distance.

A glance along the ridge before us disclosed that work was only beginning. A steep descent led to an ice col, then three gendarmes which we called the Dames Anglaises from their resemblance to those famous pinnacles, blocked the way to the next peak, No. 3. Beyond that we could see nothing but the impossible-looking wall of the last peak of the series, No. 4. Underhill led down the fairly easy rocks to the ice col, where we tried to find a solution to the riddle. The gendarme was unclimbable without pitons, karabiner, sneakers, etc., and would very likely prove extremely difficult. The traverse to the left offered nothing, but to the right was a possibility of cutting around it on a steep ice slope. We chose this solution. After a long bout of step-cutting, we finally turned all three gendarmes and stood at the foot of Peak No. 3. It did not seem so difficult on near approach. A winding ledge spiralled upward to the left and finally brought us to a nice little chimney up which we scrambled to the summit, arriving just in time for five o'clock tea. As there was no cairn, we were evidently the first to attain its elevation (*ca* 13,700 ft.).

Almost immediately we descended to the col separating us from our last objective. The ridge of snow was just wide enough to permit placing one foot before the other and walking along, but the drop of several thousand feet on either side was far from reassuring. Luckily, the distance across the col was only fifty or sixty feet.

The wall of Peak No. 4 now loomed above us, but in place of the black doubt felt earlier there now surged a new hope; for a slight break indicated a chimney and we could get into it. This chimney, difficult as it proved, led almost directly up to the top and although the height was not more than seventy-five or a hundred feet, it gave us quite a battle. It brought us to the coveted goal (*ca* 13,600 ft.) however and that only an hour after we had reached the previous summit.

We found the records of the earlier ascent in 1922 made up the scree slopes on the back, and after a short rest on top started down the easy incline toward the glacier. Reaching this by a short glissade, we encountered a quagmire in its upper reaches. We sloshed our way through, however, and wearily mounted our horses at 7:30 for the hour's trip back to camp.

After a day spent mainly in sleeping behind mosquito nets, Underhill and I set forth once more, this time at 6:45. We left the horses at the usual place and ascended the glacier toward Peak No. 5, directly at its head. It was a weary grind through deep slush. Below the col at the left or south end of our mountain we changed our plans and made directly up the rocky northeast wall on the right. Leading here and finding the going progressively more difficult as I traversed up and to the right, I finally headed directly up. After five hundred feet of very interesting but very exacting slab climbing, we emerged on the southeast ridge just beyond the turret at its end which dominated the col.

Once on the ridge we thought our difficulties would be over, but they had only just begun. The ridge was very narrow, dropping off more sheerly on the back side than on that we had just ascended. There seemed to be a feasible route down to the col around the turret but we could not see it in its entirety. We clambered along the ridge a short distance to the first gendarme, a great pile of rock effectively blocking our passage and offering seemingly insuperable difficulties. I went up a short distance and then not liking the prospects looked around both sides for a traverse. None disclosed itself and our hopes were rapidly disintegrating. Underhill, having brought his sneakers, was delegated a select committee of one to investigate the possibilities of a traverse to the right while I settled down into a crevice to belay the rope. Going a few steps, he dropped down a narrow crack in a reëntrant angle to a little platform just large enough to stand on comfortably. From here, he disappeared underneath a large corner. The nervous tension increased; would it go or would we be compelled to retreat down those terrific slabs? If this one passage went, would we still be able to continue or would we be getting more and more inextricably involved until it ended by defeat in a hopeless impasse. Finally from around the corner came a yodel of triumph and after ascertaining that the further way seemed reasonably hopeful, I followed with the two packs and the climbing boots. From the little platform, the way led across an almost

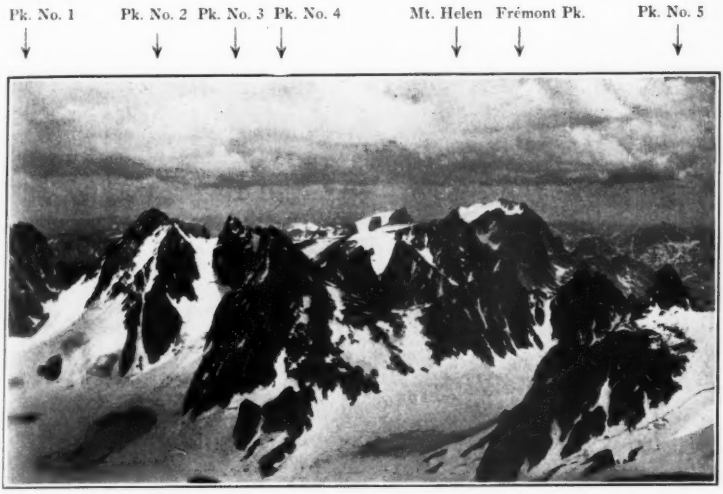



*Photo. K. A. Henderson*

VIEW SOUTH FROM GANNETT PEAK

*Photo. K. A. Henderson*

FROM DINWOODY GLACIER

*Photo. K. A. Henderson*

PEAK NO. 3 FROM PEAK NO. 4

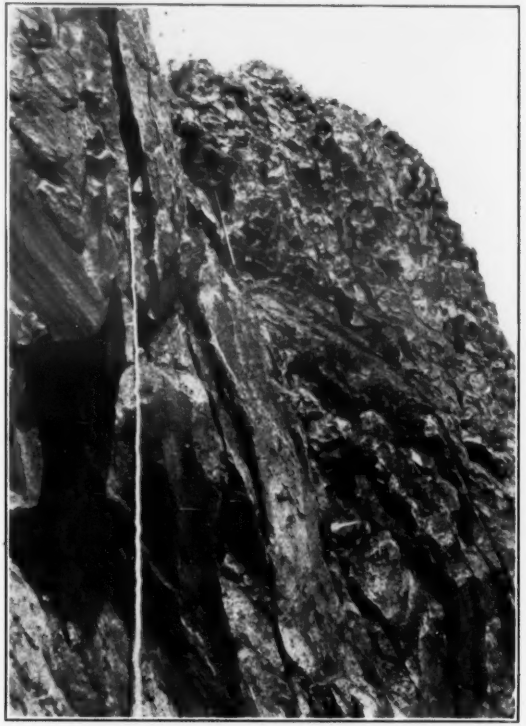


*Photo. K. A. Henderson*

PASSAGE OF GENDARME ON PEAK NO. 5

holdless slab, ending in an abysmal void, to an overhang on which I found the weight of the two packs a considerable hindrance. Then up behind a great flake of rock split from the wall to a reasonably commodious ledge which we followed to the ridge again beyond the gendarme.

The ridge here was literally a knife-edge for it would have almost cut one to sit upon it. A few feet beyond, three little gendarmes balanced themselves squarely astride the crest. Luckily the slabs to the left were provided with holds, so the traverse was fairly easy, but beyond them again there arose another bulky tower to bar progress.

By this time, the mountain had risen much in our estimation and we had passed from the stage of mere annoyance to one of sheer defiance. We were now determined that, come what might, we would make the summit. Fortunately a ledge to the right offered a hope which we were quick to seize and by traversing up and down along several sloping ledges managed to reach a couloir that made towards the summit. Part way up this we came upon a snow patch which offered the possibility of a drink, so we halted for lunch and inspected the scene of our struggles.

The slabs up which we had come now looked terrifically steep, while the big gendarme seemed forbidding if not impossible and a long way below. The three little gendarmes on the ridge appeared ready to topple over at the first breath of wind. Shortly after a brief lunch we arrived at the summit (*ca* 13,500 ft.) at the, for us, colossally early hour of 12:45.

There was no cairn, so we built one, although nearly killing ourselves in the process. We had contemplated traversing the next peak beyond, that day, but when we saw its massive ruined pile and remembered our struggle of the morning, we concluded to rest upon our laurels, for we reasoned that six peaks in six days, all first ascents or new routes, wasn't really such a bad record. We had fulfilled our original intention of doing only new routes and traversing all of our mountains, and now upon the summit of our last and most difficult peak, we decided that another would really be superfluous.

We solved the problem of our return by an easy descent to the col between ours and the next peak, and a much harder descent of the steep snow slope below the col, broken as it was, by an enormous and gaping bergschrund, to circumvent which would have entailed a tremendously long traverse. Straight down seemed the only solu-

tion, so we took it. It required several inspections to find a place where the upper lip overhung sufficiently to make a good jump. Neither of us realized the height or we would have discussed the matter even more than we did. Underhill went first, then the packs, then I. The take-off was easy but the landing was hard, in fact I have never felt soft snow so hard; it came right up and hit me in the face with a most impertinent smack. The jump was all of fifteen feet and certainly gave us a good jolt. The rest of the descent lay down easy snow slopes, some *en glissade,* to the glacier; then down it to a very comfortable grassy nook close to water where we ate, talked, and thoroughly enjoyed ourselves for the rest of the afternoon until it came time to practice our horsemanship once more and return to camp.

The following day, we returned to civilization, covering in one day the whole thirty-five miles to the ranch. I think we were considerably aided in our determination to do this rather long march by the fact that there was only one can of beans and one of tomatoes for our dinner had we remained out. That the spiritual and esthetic should be in man the predominant appreciative quality there is no doubt, yet there must be some nourishment from the material to breed that "mens sana in corpore sano," without which our best efforts avail for naught.

## NOTE

In the foregoing article "right" and "left" have been used in the orographical sense in all geographical descriptions whereas in the narration of the actual climbing they have been used as the terrain appears to the climber.

A list of some names which have appeared in previous accounts for some of the peaks mentioned in this article is given below with the names of the suggestors.

Peak No. 2. (Elsie)—Bent, Jackson, Wyman party 1922.

Peak No. 2. (Harding)—Blaurock, Ellingwood party 1924.

Peak No. 4. (Dinwoody)—Bent, Jackson, Wyman party 1922.

The following names are suggested by us for the various summits in this group, selected because of their appropriateness to the characteristics of each peak.

For Peak No. 1. (TURRET) from the form of its summit.

For Peak No. 2. (BROAD PEAK) from its size, shape and spaciousness of summital area; or either of the previously suggested names above listed.

For Peak No. 3. (DOUBLET) from the two sharp pinnacles on the summit as seen from Peak No. 4.

For Peak No. 4. (DINWOODY) as above.
For Peak No. 5. (THE SPHINX) from its general appearance.

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See also *Appalachia,* Vol. XVI, No. 1, 1924, under "Alpina", p. 97, for first ascents.

"Gebirgsfahrten in den Windriver—Bergen im Wyoming" by Herman Bühl in Der Alpenfreund, Munich, Feb. 1926, p. 85 *et seq.*

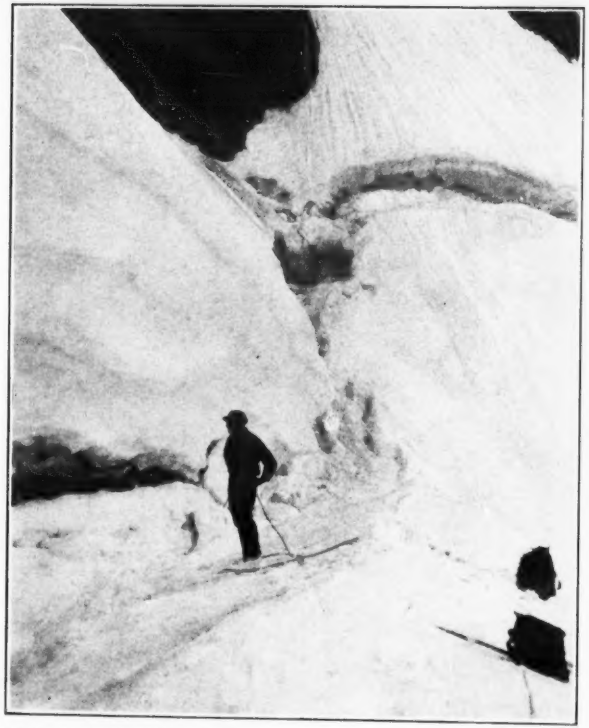
# The Grand Teton

KENNETH A. HENDERSON

THE Grand Teton, the landmark of the fur traders in the last century and the inspiration of travelers to the Yellowstone, stood solitary and aloof for many years. The first ascent was made by a comparatively easy route which has been followed by everyone who has since climbed the mountain. Knowing this situation, we camped last summer at Amphitheatre Lake (9,600 ft.), with the intention of putting a new route up the mountain. The ridge which came down on the east, splitting the Teton Glacier into two equal arms, seemed to offer the most obvious possibility. We examined it from the bottom, side, and top, and finally on July 22nd felt justified in making a try for it.

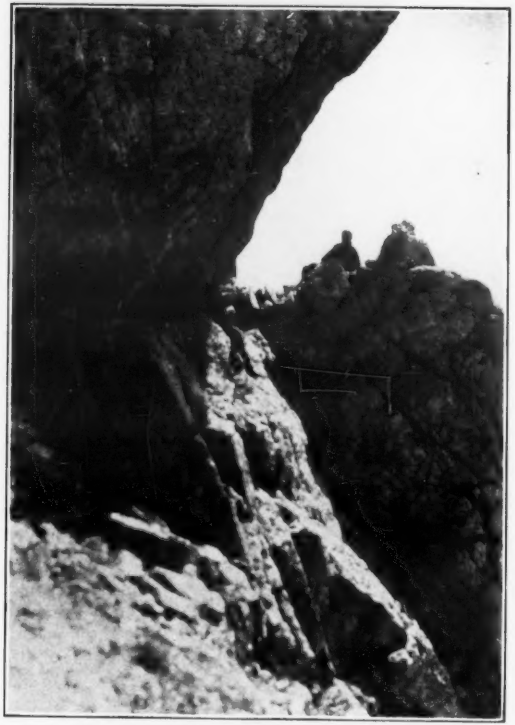
My companion, R. L. M. Underhill, and I started out at 6 a. m. on our fateful enterprise. We crossed the ridge from camp to the Teton Glacier and thence to the end of our chosen ridge. We gained the rocks about one-half hour later without difficulty and rose some two thousand feet on easy slopes on the left of the crest to more difficult rocks where we put on the rope. Just above us towered the sheer wall of the first gendarme which had stopped most of our predecessors. Underhill donned his sneakers and tried several alternative ways but we finally gave them up as too hard and unpromising. A ledge along the right side of the gendarme seemed to offer a solution. We dropped back a ways and, fixing a rope sling, *rappeled* a short distance to the ledge which we followed about a hundred feet to an icy couloir. This we crossed and then climbed up a short rotten chimney to a continuation of the ledge. We followed this to a second ice couloir up which we cut our way. A few comparatively easy rocks at the top brought us to the col beyond the first gendarme.

The ridge upon which we stood was very narrow and before us loomed the endless down-sloping and overhanging slabs of the big gendarme. Up these we carefully forced our way for about five hundred feet until they gradually merged into respectable ledges. A short traverse to the right to enable us to look around the side of the gendarme showed us a ledge higher up. We could not see its farther end, but if it should prove to be the same as that we had seen from the top, our troubles would soon be over.



*Photo, K. A. Henderson*

BELOW CHISEL AT BELOW PEAK NO. 5.



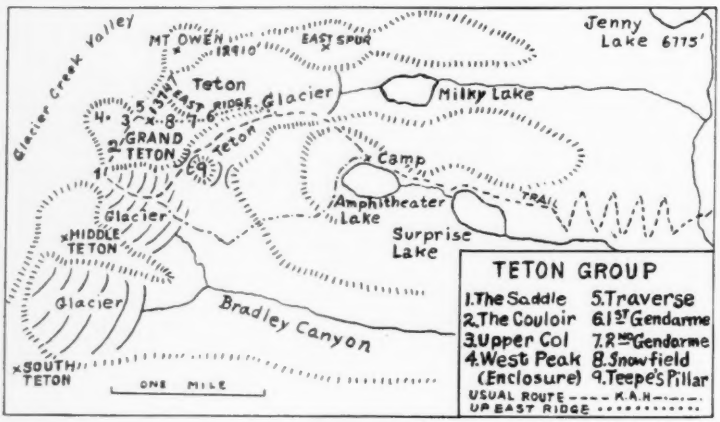
*Photo, K. A. Henderson*

TRAVERSE ON REGULAR ROUTE, GRAND TETON.

*Photo. A. R. Ellingwood*

GRAND TETON OVER THE MIDDLE TETON
AS SEEN FROM THE SOUTH TETON.

Note the two gendarmes on east ridge (right).



We stopped for a while at a snowbank on our easy ledges and ate a meagre lunch while discussing the merits and possibilities of the climb. Then starting again about 1 o'clock we traversed upward to the left, and arrived, after a hundred feet or so, opposite an opening in the ridge which we judged should lead us to our ledge. It did, but the ledge soon ran out, so it was necessary to *rappel* to a lower one a few feet below, although at another point we could probably have climbed down. We followed the ledge about a hundred feet to an overhang beyond which we had been unable to see. Here we changed leads and Underhill went up to find the ledge continuing around the gendarme and coming out at the snow col beyond.

We followed the knife-edge of snow to the other side of the col and then climbed to the right over twenty feet of easy rocks to the foot of a snow ridge. In order to save time, we mounted on the bare rocks to the right, just beneath the crest of the ridge, a few hundred feet until we were forced to take to the snow. At first we could easily kick steps, but that condition soon gave way to an icy surface where we were compelled to cut. The distance was about four hundred feet and the labor strenuous, so Underhill was only too willing to yield the lead when we reached the summit rocks.

These we ascended directly toward the top, finding just below it the remains of the American flag placed there a few years ago. The rocks were difficult and at one point a passage had to be forced by means of a *courte-echelle*. We came out on the north ridge thirty or forty feet from the summit (13,747 ft.), where we arrived at four o'clock just ten hours after our start. After about an hour on top, we coiled up the rope and romped down the regular route back to camp, arriving about three hours later in time for a late dinner.

In conclusion it may be said that this climb offers about four thousand feet of the finest kind of climbing. The rock is good; if it were not, the climb would be impossible. There are some easy slopes and easy rocks but there are also very difficult sections and many of them. In contrast with most climbs in this country it also possesses variety, for some of the ice couloirs present quite difficult problems and step-cutting on the upper snow slope cannot be avoided. It is a long climb and one of continuous and varied difficulties, not to be lightly undertaken even by experienced mountaineers. It may justly be ranked with such first-class Swiss climbs as for instance the Schalligrat or the Zmuttgrat.

# Technical Climbing in the Mountains of Colorado and Wyoming

Albert Russell Ellingwood

WHEN the history of mountaineering in the Rocky Mountains of the United States comes to be written, a new chapter will begin about the end of the first quarter of the twentieth century. At that time few, if any, peaks of major importance remained unclimbed. The more energetic climbers therefore turned their attention to ascents which were attractive because of their technical interest rather than because of altitude. There is a lure in high altitudes as there is a lure in high latitudes. But novelty has its fascination also. And difficulty has a charm that is irresistible for many. All of these elements must combine to make the perfect climb; the enthusiastic alpinist is completely happy only if his skill is severely taxed to bring him "new lighted on a heaven-kissing hill."

To the incorrigible mountaineer, climbing is a dynamic impulse. He must develop, he must advance. There must be some accomplishment worth recording. He is not content to march up the same hill repeatedly, and then march down again. So, if there are no more heaven-kissing hills upon which he can be the first to alight, technical attractiveness becomes a more important desideratum, and he begins to feed his ambition upon a diet of new routes to old summits, traverses, tempting pinnacles, and ragged arêtes. The multitude of these is legion, and there are no duplicates. Age may weather them, but custom cannot stale their infinite variety. The pursuit of them is like the playing of chess, that greatest of all indoor games of skill. One uses the same pieces on the same black and white squares, but after the first few moves of a gambit, the game becomes unique, and the player is forced to "plot and plan as best he can" a campaign reaching many moves ahead, which he will continually modify to meet immediate exigencies. So, in the game with the rocks, there are familiar "pieces"—cracks and chimneys, chock-stones and over-hangs, shelves and ledges, bulging noses and razor-like granite ridges—and never are they combined twice in the same pattern, so that the winning of the game depends not merely on adeptness in manoevering the pieces but on strategic skill and the versatility that fructifies from experience.

But let us return to our history. After the ascents of the explorers, geologists and cartographers, we come in time to the period when mountain climbing is done for its own sake and not for any utilitarian purpose. First we have what Geoffrey Winthrop Young has called the "walking epoch"—when the climber's two feet carried him to his destination. This lasted a long time. Under normal conditions, anyone of average physique, reasonable stamina and a modicum of determination can *walk* up most of the peaks in the American Rockies. A few good climbs went into the record before 1900, such as the first ascent of Frémont Peak in 1842, that of Longs Peak in1868, Lamb's descent of this peak by the east face in 1871, the first ascent of Mt. Wilson in 1874, and that of the Grand Teton. Some of the more difficult or less accessible peaks were not climbed till after the turn of the century. In this group would be included Pyramid, Capitol, Kit Carson, Crestone Peak, Crestone Needle and Columbia in Colorado, and Mt. Moran in Wyoming.

By the end of 1916, there was no virgin 14,000 foot peak in Colorado, and serious rock climbing was getting under way. Clark and Hagerman had already done good pioneering in the Elk Range, Mills had some interesting scrambling on Longs Peak to his credit, a few members of the Colorado Mountain Club had sampled the attractive cliffs along the Front Range between Arapahoe and Audubon, and several enjoyable routes had been traced on Kit Carson, the Crestones and Sierra Blanca. The good work went on apace. No complete account is possible, for the systematic and conscientious recording of worth-while climbs, so characteristic of Switzerland, finds only a shadowy counterpart in this country. But enough appears on the record to leave no doubt of the growing popularity of the kind of climbing in which a special technique is an essential factor. The grand total of the achievements of the past ten years is very encouraging. In 1920, the Lizard Head was ascended for the first time,[1] and the possibilities of the Needle Mountains were revealed. All the more promising climbing centers in the Colorado mountains had now been brought to the attention of interested mountaineers, and the period of exploitation was at hand. A detailed chronicle of this decade is out of the question in the space now available, though some of the ascents will be mentioned later in our discussion of the several localities.

[1] First to Climb Lizard Head. *Outing Magazine*, November, 1921.

Meanwhile, the Wyoming mountains were coming into the limelight. The climbing done on Mt. Moran by LeRoy Jeffers and others from 1919 to 1922, the ascents of the Grand Teton, Middle Teton and South Teton in 1923,[2] and four first ascents in the Wind River mountains the following year[3] set the ball rolling, and probably more serious climbing has been done in these two magnificent ranges during the last five years than in all the rest of the Rockies. In that time there have been at least seven first ascents in the Wind River range, either of new peaks or of old peaks by new routes. New and interesting routes have been successfully completed on the Middle Teton and the Grand Teton, and several of the lower pinnacles in this group have been climbed for the first time. The Grand Teton which has been called the "American Matterhorn" more often and more deservedly than any other peak in the United States, has become almost as popular, relatively speaking, as its Swiss namesake.

The achievements of mountain climbers in these two States during the past summer furnish ample testimony of increasing interest in the more difficult ascents, and set a high standard for next summer, and the next. On June 9th, Harold Wilm and Dobson West made the second ascent of the famous Lizard Head,[4] using the same route yielded up by the spectacular little pinnacle to the first climbers nine years earlier. Carl Blaurock, Stephen H. Hart and W. F. Ervin made the first ascent of "Mt. Lindbergh," an attractive prong on a western spur of the Continental Divide above Monarch Lake, on September 2d.[5] The outstanding feat of the summer was the victory of Kenneth A. Henderson and R. L. M. Underhill over the east ridge of the Grand Teton, which undoubtedly will take rank as one of the finest climbs in the Rockies. Various climbers have tried to find a new route up this superb pyramid for the past six years, but have repeatedly been defeated by ice and snow, weather conditions or accidents, and anyone who has played around on that east ridge at all will testify that Messrs. Henderson and Underhill have put no mean accomplishment to their credit. The same party reached two new summits in the Wind River range and found new courses up four

[2] Our American Matterhorn. *Outdoor Life*, September, 1924.

[3] A Trip in the Wind River and Teton Ranges. *Trail and Timberline*, August, 1925.

[4] Second Ascent of Lizard Head. *Trail and Timberline*, August, 1929.

[5] Climb up Mt. Lindbergh. *Trail and Timberline*, November, 1929.

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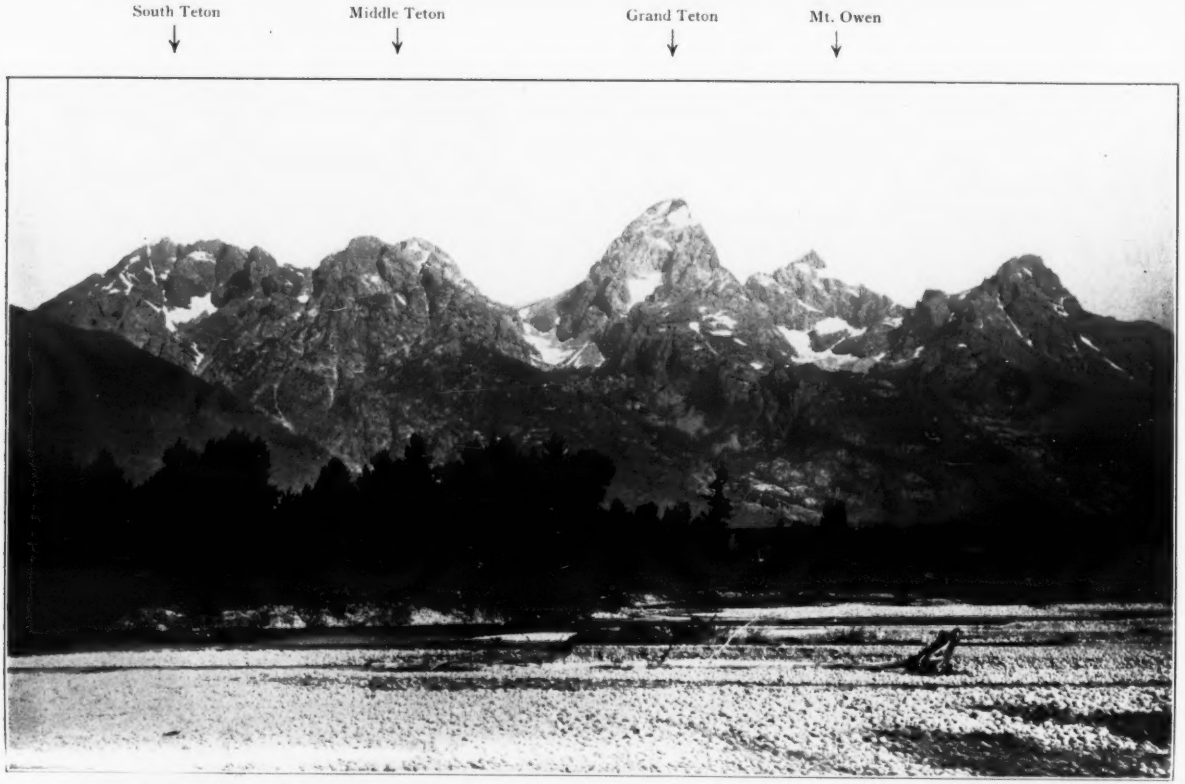
TETON RANGE FROM THE SOUTH EAST




© J. E. Haynes, St. Paul

TETON RANGE FROM THE SOUTH EAST.

others, including the handsome northeast face of Gannett Peak.[6] F. M. Fryxell was also busy in the Teton range, for the third season, and registered first ascents of several interesting peaks between the Grand Teton and Mt. Moran, as well as the first ascent of the Middle Teton by its steep east ridge.

The foregoing record is doubtless incomplete, but even if it is the sum total for the season, it is a very gratifying showing. Yet it should be emphasized that these climbers and all those who have preceded them have made only the merest sampling of the riches of the Rocky Mountains. For the last few years we have been trying to make Americans on a vacation realize that they need not go abroad to find things worth seeing. It is equally desirable that our mountaineers should learn that they can have crag work as difficult as they may wish right here at home. Of course, climbers of the Finch school, who dismiss all rock-work as nothing but acrobatics, will be disappointed. Yet even the devotee of the ice-axe will find, in the many miles of glaciers that surround Frémont Peak and stretch away to the north, no inconsiderable amount of practice that is not altogether beneath contempt. He will discover enough bergschrunds and steep icy walls, séracs and ice-falls, to lesson the novice at least, and he need not arise at 2.00 o'clock in the morning to do it. Let this not be interpreted as an intimation that the Rockies are the equals of the Alps, or ever will be. They are different in so many ways that a comparison is of little value. But just as the crags above Wastwater have served both to develop the skill and increase the happiness of two generations of English climbers of the first rank, so the cliffs, couloirs and needles that are grouped around a dozen climbing centers in Colorado and Wyoming will give joy to those to whom climbing is an art, as long as there is room for such things in men's lives.

In the storied San Juan region, there are at least three of these centers—the Mt. Wilson group, the Needle Mountains, and the Uncompahgre-Wetterhorn district. Bilk Basin offers the best campsite for the first of these. The Lizard Head is the outstanding climb, and much honor awaits the discoverer of a new route to its ragged summit. Mt. Wilson has been climbed by every one of its principal ridges, and no one of them furnishes appreciable difficulty except for

[6] An account of this climbing appears elsewhere in this issue of the JOURNAL.

rather ticklish knife-edges of loose rock near the top; but there are very enticing cliffs along its east face. Finally, the western and southern precipices of Gladstone are most impressive. Chicago Basin is the proper center of operations for the Needle Mountains, which are by no means unworthy of their name. All the peaks have been climbed by one route or another, but there is a wealth of rocky walls that have probably never felt a human foot. The sweeping western and northern cliffs of the two peaks of Eolus, those on the east face of Turret and on the southeast and northeast faces of Pigeon, the sheer crags that almost encircle Sunlight and those that bound Windom Peak on the southwest, the battlemented amphitheater at the head of the north fork, the ridge between Eolus and Sunlight and that between Sunlight and Windom—these are only the more conspicuous attractions of this favorite playground of Vulcan. The opportunities for technical climbing in the Uncompahgre-Wetterhorn territory are not many, but any who have gazed upon the stupendous northeast face of the former peak will agree that its ascent (if possible) would be spectacular enough to satisfy the most blasé. The north ridge and northeast wall of the Wetterhorn look more feasible but would be "plenty" interesting. The camp for this climbing should be located on the headwaters of the Cimarron.

In the Sangre de Cristo range there are only two climbing centers worth mentioning. The Sierra Blanca *massif* exhibits some excellent cliffs in the basin at the head of Little Ute Creek (which can be reached easily from a camp in Burro Park), and in the awe-inspiring cirque at the head of the Huerfano. The beautiful peak has been climbed (or descended) by each of its four ridges (except, possibly, the relatively easy southwest one), but there is no record of an ascent by the northeast, southeast or southwest faces, all of which are steep enough to satisfy anything but a fly. More good climbing will be found in the Crestone region than in any other part of the range. Willow Creek is the best campsite for those who are interested in Kit Carson, for its best cliffs bound the high basin of this stream. Two parties have come off the peak by this route, but many variations might be made, and there is no record of an ascent on this side. The best crags, however, are on the Crestone Peak-Crestone Needle ridge, and the ideal base of operations is South Colony Creek. Like the battlements of a giant's fortress, these seamed and creviced buttresses and cliffs form a majestic wall over two miles long, abundantly adorned with the steep chimneys and near-perpen-

*Photo. C. Blaurock*

CRESTONE NEEDLES, SANGRE DE CRISTO RANGE.

*Photo. D. & R. G. R. R.*

ANIMAS CANYON, NEEDLE MTS., COLORADO.

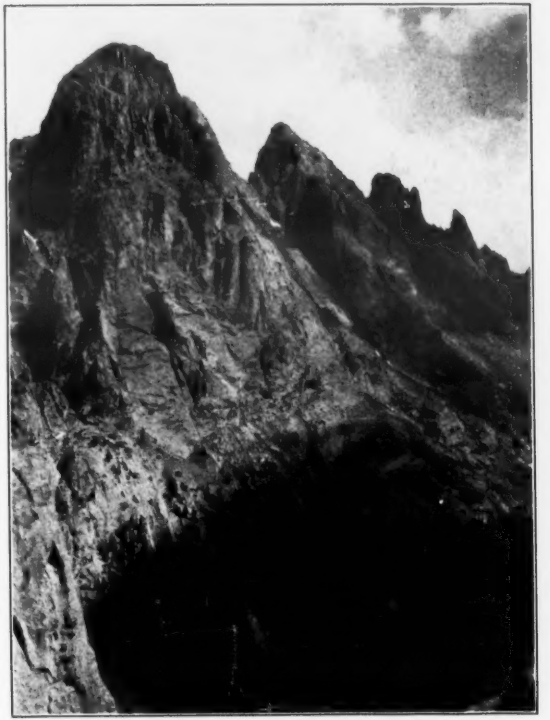


*Photo. W. F. Ervin*

RIDGE NORTH OF PIGEON AND TURRET PEAKS, NEEDLE MTS.

*Photo. A. R. Ellingwood*

CHIMNEY ON THE BISHOP ROCK, CANYON OF THE SOUTH PLATTE.

dicular arêtes that are dear to the heart of a mountaineer. According to the record, it has yielded to attack at only two points—a descent part way along the south ridge of the Needle at the time of the first ascent of the latter in 1916,[7] and the first ascent of the Needle's east arête in 1925.[8]

The Elk range likewise boasts two groups of peaks that are worthy to be put on the alpinist's itinerary. The one consists of the colorful North and South Maroon Peaks, two crumbling pyramids that have been climbed or descended from several different angles, but still offer various intriguing opportunities to the inquisitive, particularly if one likes the sort of cliff where the leader can hardly shrug his shoulders without shaking down a shower of small rocks, and all below him should really climb in coats of mail and steel helmets. The best climbing is on the east side, and one should camp at the upper lake in West Maroon Creek. The second, and better, group in this range is the Hagerman-Snowmass-Capitol concatenation of sharp ridges and sheer walls. Capitol (13,997 ft.) is certainly one of the two or three hardest 14,000 foot peaks in Colorado, and as yet only one passage to its summit has been discovered. Capitol Creek gives the easiest approach to this splendid peak, while Snowmass Lake (often called the most beautiful lake in Colorado) is the best base for Hagerman and Snowmass Peaks.

The Mt. of the Holy Cross is another place that one should not neglect, though there is not as much of interest here as in some of the other districts we have described. There are some excellent crags, too, in the neighborhood of Navajo and Apache Peaks and Paiute Horn (12,900 ft.) in the Front Range, best reached from Lake Isabelle on the east or Monarch Lake on the west side of the range. Some meritorious climbing has already been accomplished here, but the record is so imperfect that it is best not to attempt details.

One of the finest climbing districts in Colorado is unquestionably the Longs Peak *massif*. It is also one of the most extensively exploited, as will appear from the history of the peak given elsewhere in this issue of the JOURNAL. Every ridge and every face on the mountain have been used to reach the summit, and the climber of the future can only repeat some of the interesting ascents of the past,

[7] Climbing in the Sangre de Cristo. *Trail and Timberline*, June, 1925.

[8] The Eastern Arête of the Crestone Needle. *Trail and Timberline*, November, 1925.

or introduce "variations." The roll of accidents shows plainly that the more difficult routes are only for experienced mountaineers, and some of them have been traced out only once. Perhaps more nearly virgin cliffs can be found on Pagoda, Chief's Head and McHenry to the west of Longs. The first of these has been traversed from west to east,[9] but has not been climbed by either of the imposing faces.

The main attractions of the Wind River range lie between Knife Point Mountain and the north Gannett glacier. Three bases of operation have been successfully used to explore this fascinating agglomeration of peaks and glaciers, practically unknown to alpinists ten years ago. The most accessible is the head of Dinwoody Creek, now opened up by a forest service trail from Torrey Lakes. This is the way to reach Gannett Peak and the great arc of sharp-pointed pinnacles that springs from its southern ridge, as well as two towering *innominatae* on the south side of the valley, one of which is the third highest peak in the range. The higher summits have all been reached,[10] but a number of the needles at the head of the Dinwoody glacier bear no hobnail marks at all. The head of the north fork of Bull Lake Creek is the ideal center for excursions on the large glaciers that are banked in around Knife Point, Frémont Peak and Mt. Helen, and for climbing these interesting peaks and their smaller neighbors. On the other side of the range the best base is Island Lake, from which operations can easily extend from the Knife Point group as far north as the high pass to the Dinwoody glacier.

Finally, there is the incomparable Teton district, including about fifteen miles of the Teton range, from Moran Canyon on the north to Death Canyon on the south. Preeminent in this showy rampart is the lordly Grand Teton, bearing on its outstretched arms a number of slender sentinels. No one yet knows whether the tip of some of them is as exiguous as it looks from below, and few have been ascended more than once. The ridges, ribs and couloirs of the Three Tetons are a practically inexhaustible studio for the mountaineer, where he can work out almost any technical product he desires, from the delicate artistry of needle-work to the courageous and ingenious tactical campaigns that are exacted by the enormous tapestry of an intricately shattered and riven mountain wall. To get acquainted with this trio of giants, he should pitch his camp in Bradley Canyon, but when he

[9] A Glimpse of Wild Basin. *Trail and Timberline*, November, 1927.
[10] See Henderson's article elsewhere in this issue of the JOURNAL.

is ready to get on especially intimate terms with the Grand Teton, he should move up to one of the small glacial lakes on the east slopes of that peak. For Mt. Moran, which also offers much and most varied climbing of the first order, the appointed base is Leigh Lake, though the southwest corner of Jackson Lake is even better if one can get a launch at the village of Moran.

Such are the special playgrounds for the more exacting mountaineers that have been made ready in Colorado and Wyoming by the Architect of the ages. They are fully equipped for recreation and ready for use, and they will not wear out for some time. They should be used cautiously and respectfully by novices, and even the most proficient can be directed to many courses that will baffle them again and again. Parenthetically, it may be added that there is a great deal of exhilarating climbing in these two States not embraced within the special centers that have been mentioned here. Almost every large peak has cliffs or couloirs that will repay investigation. Every poem need not be an epic nor every musical composition a symphony; the sonnet has its perfection and the bagatelle its charm.

There is no danger that any of the districts described above will, in this generation, attain the popularity of Grindelwald, Zermatt or Chamonix. It is to be hoped they never will. There is no more reason why the *profanum vulgus* should play on the myriad keys and stops and pedals of these Herculean organs of stone than there is for turning over the laboratories of Edison, Michelson or Steinmetz to the man in the street. The beauties and the benefits of the mountains can and should be generously opened up to the multitude who need them so badly; but the atelier which can be fully appreciated and used only by connoisseurs may well be left in some seclusion, to be reached by those who know what they want, and want it badly enough to make the effort necessary to attain it. Noble Longs Peak is fatally near the beaten track, and already has its guides and its tariffs, and the inevitable steel cable. May it be a sufficient sop to Cerberus!

# A Traverse of The Dent Blanche[1]

HASSLER WHITNEY

TIME had defeated us on the long ridge from the Triftjoch to the Rothorn. We had descended from the Pointe de Mountet, and were now crossing the expanse of the Glacier du Mountet between large crevasses. The work of climbing over, we were free to admire the scenery about us. The Rothorn directly above us we forgot, as our eyes turned towards the setting sun, the Dent Blanche, and, further to the south, the Ober Gabelhorn. It was the Dent Blanche that ruled the scene. In the late afternoon light, it seemed separated from all else by a thin mist, but a mist which left every line and shadow in the rocks sharp and clear. The mountain's mood was not one to attract us to its rocky sides, nor yet to repel us from its flanks. It stood there, noble and serene, in a silent world not made for man to roam in. The light gradually faded. At 8.45 that evening we woke the keeper of the Hotel du Mountet.

After an immense breakfast the next morning, we walked slowly up the Roc Noir, which lies directly below the Dent Blanche. Having arranged the rocks of the summit into a couch, we settled down to a study of the Viereselgrat. This famous ridge of the Dent Blanche was first climbed on August 11, 1882, by John Stafford Anderson and George P. Baker with Aloys Pollinger and Ulrich Almer. Its name is due to an exclamation of Almer's, on reaching the summit, "Wir sind vier Esel!" A friend suggested to Anderson that this be the motto of the Alpine Club. Bradley Gilman and I were to attempt this climb on the morrow. We roused ourselves finally, walked along the glacier towards the foot of our peak, and returned to Mountet.

At midnight, Brad and I were called. At 8.30 a. m. we were still there, for the weather was snowy and misty. To make use of our time, after some patching of rock-torn pants, we ascended to a point of the southwest ridge of the Besso where my brother and I had left it two years before, and finished the climb up the glorious chiselled rocks to the summit. Before long the cold wind drove us down. Back at the hotel, we had a pleasant chat with an Englishman and his wife from Geneva. The Englishman had one leg wooden below the knee, yet greatly enjoyed snow and ice climb-

[1] Aug. 29, 1928.

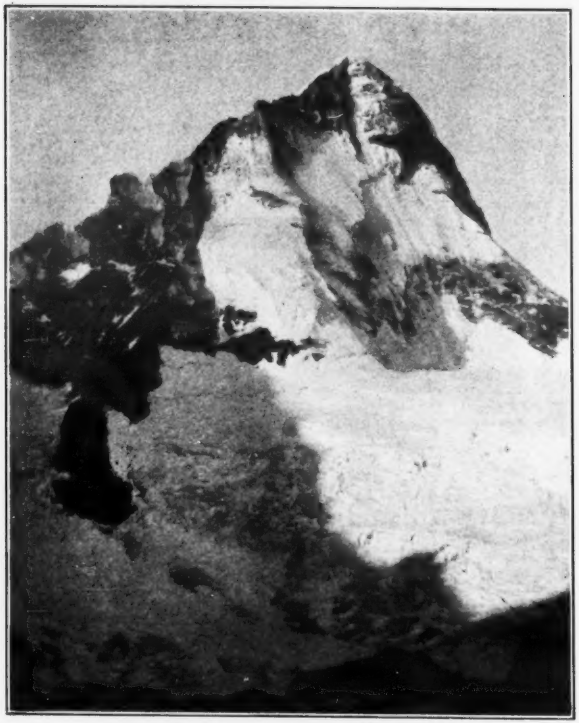


*Photo H. Whitney*

DENT BLANCHE. (14,318 FT.)

From above Mountet. Viereselgrat on left, running into glacier below.

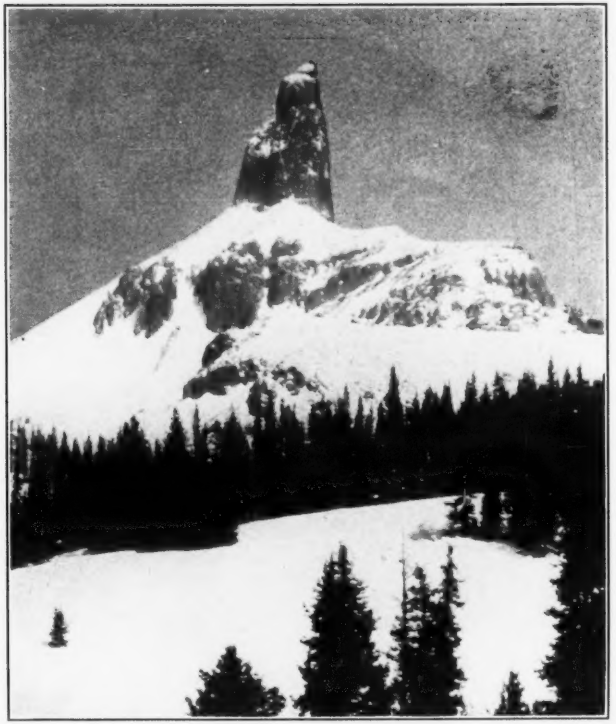


*Photo. G. L. Beam, Courtesy D. & R. G. R. R.*

LIZARD HEAD, COLORADO. (13,156 FT.)

*Photo. H. Whitney*

DENT BLANCHE: GENDARME OF EAST RIDGE AND POINTE DE MOUNTET.

*Photo. H. Whitney*

FIRST GENDARME NEAR TOP RIDGE OF VIERESELGRAT

ing, and had come across the Col de la Dent Blanche from Ferpecle the day before.

It was midnight again. This time the weather looked more promising, so we packed our sacks, had breakfast, and at 1.00 a. m. departed. We set out upon the glacier. For awhile, the low moon aided us on our way. The peaks in front were in a deep darkness; behind, in contrast, the Rothorn rose out of a beautifully white glacier. As we rounded the Roc Noir, the moon left us entirely. Crossing the mound of snow and ice along our former tracks onto the upper part of the glacier seemed queer, so different was the world now, and so different our purpose. We heard a roar at the foot of the Ober Gabelhorn, but could see nothing. A tremendous avalanche was dashing down its cliffs. Five minutes later it died away.

Leaving explored ground, we wound around the glacier, and struck at the base of the Dent Blanche. A few steps in the ice led us into the lower couloir. Trudging up the hard shale, we reached a small patch of snow, which we had noted two days before. It was the only thing we could see in front of us; all else was black. Turning to the left, we scrambled up the rocks, feeling our way, with some help from the lantern. A steep pitch, and we knew we were in the upper couloir, for the ground was flatter again. Soon afterwards we were on the ridge, sitting in a tiny col, wondering whether to wait for the dawn.

But it was dull staying still in the darkness, so we started off again. As our sight could not penetrate across the face of the mountain to our right, we stuck to the ridge. A large gendarme now blocked the way. With the lantern in my teeth, and my ice axe dangling from my right wrist, I struggled upwards. With much use of friction, the top was reached, and Brad followed quickly. To descend the other side, we unroped, put the rope around one end of the gendarme and across the top, and *rappeled* down the other end.

It was now 5.00 a. m., and dawn was just commencing. We blew out the candle, and Brad started up that long and magnificent slope that ends in the top ridge. For a while we climbed quite quickly. But as the face steepened, our pace gradually slackened. We remained continuously on the ridge, that is, on the left hand end of the north face. At times we could see over the side on our left. A horrible couloir led straight to the glacier below in such a dizzy sweep that we had to restrain ourselves from following our eyes down those fearful depths. As we climbed, the great mass of snow

covering part of the north face and reaching nearly to the ridge we were on slowly dropped below us.

In the meantime the sun had risen. Ten days before, on the Weisshorn, we had had a red sunrise. Yet it had not been nearly so vivid a red as this. There were clouds strewn here and there over the Monte Rosa chain. The Dent Blanche, in contempt for us, kept a veil about its head, and was not to remove it the whole day. We inwardly wondered whether we should turn back; yet at times it almost cleared off to the north and west, so we kept on.

The mountain was gradually straightening up. Far above us yet, on the top of the wall, rose those two gendarmes, grand guards to the roof of the castle, and the top ridge was yet above that. At Chamonix one twists and twines about strangely hewn rocks, till one is not sure whether the peak or oneself goes through the greatest contortions. Here the battle was not against the rocks at one's hand; it was against the Dent Blanche itself. We were assailing one peak, one wall, and one difficulty. We could only mount, and mount on, inch by inch. Each foot and hand hold must be found among the cracks of the broken rock. It must be brushed free of snow, and must show itself firm. It was good to have three sound holds when moving, and two when remaining still for a moment.

We rose above the great gendarme of the east ridge. Far below, the Pointe de Zinal thrust her head out of the surrounding glaciers. And the clouds drew their forces together, watching us grimly.

The two gendarmes were now close above us, but not yet conquered. We pushed up the nearest till the wall became vertical. A delicate crossing to the right, a slight ascent, and we were on the sharp knife-edge of the top of our end of the wall. As we climbed the gendarme on our right, the one on our left presented a stern spectacle, rising like a finger out of almost nothing. I have since dreamed of climbing the Dent Blanche. Half of the climb was surmounting that gendarme. But why there should have been an inn on its side, my dream did not explain.

One more tower, steep but not difficult, and we were on the top ridge. A few paces ahead a little shelter for a meal was found. It was a great temptation to lie here in relative comfort, the two of us just filling out a little crack. But there was no time to dally, so at 9.00 we turned and headed towards the summit. For a while it was nice scrambling. The cloud that enveloped the summit now closed about us, and snow started falling. But it was too late to

turn back. The best way to descend was to cross the summit, for we knew there were few if any cornices ahead, it being an exceptionally dry year. The north face below did not invite us to return.

We saw now no great peaks rising on all sides; just a pleasant stone wall, with a soft mist about, perhaps in some lonely field, or on a rocky beach. A powerful impression came over me that I was back at home, chatting with friends. But I drove it away, and we climbed on. A steep tower now blocked the way. To continue, we must slide along the north side, on small and icy handholds. Brad had on woolen mittens, that grew wet and then froze, making a good protection against the cold, and a good surface for gripping jutting rocks. My heavier mittens I had to take off at times.

Back on the ridge again, a high wind swept up from the left, driving a curtain of snow flakes before it, and shutting us still more completely from all but the rocks beneath our feet. From this intimacy with our peak I was once more transported into a strange land of strange beings, beings whose existence would not pass unnoticed. We paused, amazed: there were voices behind. "Salut!" we called out. "Salut!" was the cheerful return. We were not alone on the mountain.

Snow passages now alternated with the rocks. They were narrow but uncorniced. It was rather tiring work, cutting or pushing steps in the snow, perhaps making hand or arm holds to help. Brad stopped at the foot of a gendarme, rising like a needle from the ridge. We had no desire to revisit the north face, so Brad pushed me up the gendarme. With some tugs on the rope and a helping hand, he arrived at my side. In the meantime the other party, following in our steps, had caught up, and were traversing the side of the gendarme. It was a guide and German tourist who had come up from the Schönbühl hut.

We let them take the lead to cut steps in the hard snow. But we had, in place of this work, to wait behind in the cold, which was not altogether preferable. Mostly we were below the crest of the ridge, on the north side. But at times our heads appeared above. Then the wind, coming straight up the other side of the ridge, blew a fine and sharp snow into our left cheeks, numbing them almost instantly. In these leisure moments we discussed how much we would enjoy being able at any time in the future to be back on this ridge in this weather. Brad thought he would like it for a minute and a half; I thought I could stand it three minutes.

The working ahead, and the waiting behind, kept on. There was one more patch of rocks, and one rather steep slope of icy snow. The ridge looked always the same. Then suddenly there was a yell ahead. The summit was reached.

It was 1.05 p. m., just twelve hours since we had left Mountet. The final ridge, owing to the perfect conditions, had taken only four hours. The guide who was on the summit with us now had taken three times as long on this same ridge the year before.

We stopped only to snatch a bite to eat, and then faced the south ridge. The other party started ahead of us, and we followed, literally running along the path the first part of the way. Upon reaching the steeper rocks, we put our ice axes in our sacks, and began the more serious part of the descent. The holds were sufficient and firm, and the angle was just steep enough to keep our minds steadily on the work. Usually we were on the west face, but sometimes we scrambled down the pleasant gendarmes of the ridge. A more careful descent of the couloir by the Grand Gendarme and a short walk led us onto the snow point 3912, past all difficulties.

We trotted down the ridge and the snow-field to the left, arriving at the great rocky and shaly slope leading down to the Schönbühl-gletcher. On this snow slope, almost horizontal, the tourist had practically to be held up by the guide. He had overcome the difficulties of the Viereselgrat, yet he was unable to walk on a flat snow-field without slipping.

The snow had now ceased to fall, so a halt was called for another real meal, the first since 8.40 in the morning. The other party had eaten still less. We then went running and jumping down the slope, losing height very rapidly, and soon arrived on the glacier. Here the guide rather shocked us, as guides often do, by holding the rope so his tourist was walking but five or six feet behind. At the moraine we stopped to unrope. The pause lengthened into ten minutes of fumbling with the frozen knots before our clumsy fingers won the battle and the stiff and icy cord was stuffed into one of the sacks. A very slow and lazy walk brought us finally to the Schönbühl hut, at 4.30 p. m.

The climb was done; there remained only wet clothes and pleasant memories to tell us we had been in the heights.[1]

[1] An account of the first ascent of the Viereselgrat is given by Anderson in the *Alpine Journal*, Vol. XI, p. 158. In Volume XXIV, page 627, Harold Raeburn gives a fine description of the ascent, utilizing the whole east ridge.

## A First Season in the Oberland

MIRIAM E. O'BRIEN

LAST summer I visited the Bernese Oberland for the first time, with Adolf Rubi as my guide, and was fortunate enough to do some half dozen varied and interesting climbs. The first trip that we planned was the northeast ridge of the Jungfrau, but owing to bad weather conditions (cold and high wind) we postponed it, substituting for it the traverse of the Mönch, up the southwest ridge and down the Nollen.

The southwest ridge of the Mönch is a straightforward, simple rock scramble, easily done in less than two hours. After a few minutes on the summit—it was cold, even crouching on the eastern, sheltered side—we started down the Nollen route. This lies down the hanging glacier on the northwestern face of the Mönch, the face that one sees from the Kleine Scheidegg. On the left and on the right are stupendous walls of ice formed by the breaking away of portions of the glacier as it advances, but approximately in the center is a huge ice bulge that leads down to and connects with the rock ridge between the Guggi Glacier and the Eiger Glacier on which stands the Guggi Hut of the S. A. C.

The first part of this route is a snow slope where the crampons held well, but when we looked over the edge of the steep ice, it seemed to me that I had rarely seen anything so terrifying—a smooth slope of hard ice, far too long and of incredible steepness. I was to learn, however, that one can rope down ice as one does down rocks, by cutting a piton out of the ice itself. First scraping away the surface snow down to the hard, solid ice, Adolf cut a semicircular groove with the two ends pointing downwards, leaving a knob of ice about two feet across. The groove, through which the rope was to run, was some six inches deep. Obviously it is essential, when roping off from one of these ice pitons, to hold the rope close to the slope; lifting it up might easily cause it to jump out of its rather shallow supporting groove. We had 80 meters of rope and we cut five pitons in all, which made almost seven hundred feet that we went down in this manner. I went first each time, holding the rope in the regular fashion for roping-off, and running down on my crampons, and I was supposed once arrived at the end of the rope,

to cut a substantial platform to stand in while Adolf was coming down. I noticed, however, that Adolf invariably arrived long before my platform was finished.

Finally the slope became sufficiently gentle to allow us to walk down in an ordinary manner on our crampons. At the Guggi Hut some agreeable people gave us tea and we then continued down to the Eigergletscher Station where we took the train back up to the Jungfraujoch for luncheon. We had intended to spend the night there again and try the north-east ridge of the Jungfrau the next morning, but since the weather that afternoon looked a bit uncertain we finally decided to go down to Grindelwald, where I believe it rained for three or four days. We then left Grindelwald for Chamonix, where we also found it raining, and did not come back to the Oberland until the end of August. (In the intervening month I did just two climbs, the first manless ascent of the Peigne with Miss Marples, of London, and the first manless traverse of the Grépon with Madame Alice Damesme, of Paris.)

On August 28th Rubi and I started again for the northeast ridge of the Jungfrau under much better conditions. The route lies direct from the Joch over the Mathildenspitz. The first gendarme presents the most serious difficulty of the day. Adolf, following the route of the previous parties,[1] here traversed on to the north face, where the rock is loose and usually *verglaced,* and then worked upwards and back to the ridge, which he joined about one hundred feet above. When my turn came, and after I had done some ten or fifteen feet of the traverse, I glanced back and discovered a feasible route close to the ridge, right where I had come from. Back I went, and up it, joining Adolf's route directly by what was distinctly a short-cut. There is no real difficulty in my route—the holds are firm and adequate although neither large nor warm.

The next few hours provided good rock climbing—nothing overwhelmingly difficult, but some amusing and interesting pitches. The higher one goes the easier the climbing gets. About halfway up, beyond the difficult rocks, we met unexpected trouble in the form of large quantities of snow—not the good, hard snow that one can walk on or cut steps in, but breakable crusty snow into which we sank deeply with each step. Then came cornices, also formed of the same unstable stuff, that overhang first on one side and then on

[1] For the second ascent of this ridge, see *A. J.* XXXV, 169.—Ed. *A. A. J.*

the opposite, giving no very clear indication of where the shift in direction took place. In such cases, Adolf preferred to cut across the ice slope underneath the cornice. Sometimes they broke away.

Two weeks later, Rubi and I were on the Jungfrau again, starting off for the Gratisgrat, the ridge that goes down over the Silberhorn into the Trümmelbachtal. Some friends had just gone down it and found it interesting.[1] On September ninth we left the Jungfraujoch at 4.05 and at 6.40 we were on the summit of the Jungfrau. At 7.10 after a large meal, we started down the northwest face over a snowfield, the Hochfirn, and then continued down an easy rock ridge, following the regular route to the Silberlücke, which last we reached in forty-five minutes. From there to the top of the Silberhorn took another twenty-five minutes. We spent about a half hour on the Silberhorn, enjoying the really wonderful view and, I blush to admit it, eating again. Down the ice ridge on the farther side of the Silberhorn (the northwest ridge) we cut no steps at all, Adolf assuring me that the crampons would eventually hold if I just let them slide along far enough, but my personal opinion is that skating down a steep ice ridge on crampons is no sport for a timid woman.

Below the ice, we came on to a ridge of broken black rock, where we stopped to eat again and to survey what was before us. Our route lay down a long ridge, followed by snowfields, rocky slopes, a glacier, and finally a grassy knoll. It looked like a long distance to go and everything lay over unknown territory. Starting on, we followed the ridge pretty closely, not liking to get into the falling stone region to the left of us. The going looked easier there, but it was under a hanging glacier. When our ridge ended abruptly in steep cliffs, we did venture to the left, travelling as fast as possible, however, to a small rock-sprinkled snowfield down which we glissaded at our fastest pace. At 12.15 we arrived on a level with the col at the base of the Schwartz Mönch and continued down the north side where at first it was easy going over patches of snow, scree, and a little rock wall on to a small but much crevassed glacier. It seemed to me that we walked miles up and down and back and

[1] See *A. J.*, XLI, pp. 416-417. The route is shown on the illustration facing p. 417. We went down the ridge somewhat farther than the Amstutz—de Lépiney caravan before traversing. The curious name "Gratisgrat" is said to be derived from the fact that the gentleman (Swiss) who made the first ascent departed without paying his guides.

forth across it in all directions. Finally, at the lower edge we got off on to the pleasant grassy knoll that we had seen from far above. It was then only 1.25. We felt that we had done extremely well, that our troubles were over, and that all that lay before us was a gentle stroll down through flower-strewn grass to the river in the Trümmelbachtal and up the other side to Wengernalp. Little did we know that the stiffest work of the day was ahead of us. Continuing down the grassy knoll, we soon began to run into difficulties; the slope got steeper and there were bands of rock interspersed—rock not always easy to get down although we usually found a way somehow without the use of the rope. Finally we were stuck—absolutely stuck—by a tremendous cliff much too steep to climb down, and very much too long to rope down. We tried to go to the left where our knoll was bounded by a seething waterfall called the Lammlauinen, but this looked anything but practicable as a route of descent. Adolf left his pack and traversed to the right, frantically scanning every inch of the cliff for a route down. After about five hundred yards he met another waterfall, the Giessen, without having found a way over the cliffs anywhere between. To make a long story short—or, at least, shorter—we finally did get down, by choosing what looked like the best section of the cliff and roping off. I went first, cautiously and slowly, with forty meters of rope in my hand, searching diligently for a place to land—any bit of grass growing on the cliff, into which we could jam the pick of the ice axe, and where we could find something to fasten the rope to for the next stage of the trip. We could not afford to be very particular about what we used; at one place the situation looked desperate until I discovered a narrow rock embedded in the earth and apparently connected to more rock above and below; it was a simple matter to dig a tunnel around behind and thread the rope through it. Every now and then we would land on a more or less horizontal grassy patch that I supposed, of course, was the bottom, and while Adolf brought down the ropes—at the very beginning we had given up the idea of being tied together, needing all our ropes for *rappels*—I would wander off only to discover that we were at the top of a new series of cliffs. Finally, after nearly three hours of really strenuous efforts, and after seeing a large herd of chamois which I succeeded in photographing, we reached the bottom.

THE "GRATISGRAT"—ROUTE OF DESCENT FROM SILBERHORN MARKED

THE JUNGFRAU, NORTHEAST RIDGE ON RIGHT

SUMMIT OF WETTERHORN FROM USUAL ROUTE
Upper part of Southwest Arête at left; small snow col in notch.

SCHRECKHORN (LEFT), LAUTERAARHORN (RIGHT)
Ridge traversed forms skyline between them.

A few minutes' walking over old moraines and avalanche debris brought us to Biglenalp. At Wengernalp we caught the last train and dined that evening in Grindelwald. Adolf, always a conservative youth, remarked thoughtfully, that he would not care to do that climb "with a large party of slow people."[1]

Another long trip was our traverse of the Schreckhorn and Lauteraarhorn on September 1st. We left the Strahlegg Hut at 2.10 a. m., and went up the southwest ridge of the Schreckhorn, (top at 8.45) a rock climb somewhat like the Meije, nowhere difficult, sufficiently firm, and yet not so easy as to be boring. As our route of descent, we chose the Lauteraargrat combined with the southwest ridge of the Lauteraarhorn direct to the Strahlegg Hut, which last had never been descended.

We got down the Schrecksattel in thirty minutes, and continued straight on. One of the earlier gendarmes, a very small one, was quite good fun. "It is a good thing you like it," said Adolf, "because there are fifty more." To check up on the accuracy of this statement, I began to count the gendarmes, but when I got to twenty-seven and we had not progressed any appreciable distance along the ridge, I stopped and gave myself up to plain enjoyment. It was glorious weather. There is a stimulation in climbing at four thousand meters that is missing at low altitudes and it was really a very amusing ridge, with nice drops on either side. The climbing was not so difficult that either one of us could not go up first or down last any of the pitches and we of course saved a great deal of time by not having to shift positions. We stopped a half hour for luncheon between two of the gendarmes and admired the Schreckhorn—such a friendly mountain to have such an awe-inspiring name—and shortly afterwards, much to our surprise, found ourselves on the summit of the Lauteraarhorn. We had done the ridge in three hours and ten minutes from the Schrecksattel, or three hours and forty minutes from the top of the Schreckhorn, including our half-hour lunch.

At 1.30 we started down. Since Adolf had already come up the ridge, he had a very good idea of how the descent should be carried

[1] These very exacting expeditions on the Jungfrau are commented upon in *A. J.* XLI, 422, 423. By error they are there described as made on one day, whereas the dates were August 28th and September 9th, the ordinary route to the Jungfrau being utilized for the return from the first and for the beginning of the second.—Ed. *A. A. J.*

out. He went first and I stayed behind, watching with some curiosity to see if the rocks over which he put his *rappels* were going to come out; they all looked loose to me. A little after three we reached the bottom of the steepest part of the ridge and allowed ourselves food and rest. From here, although the climbing along the ridge was easy, there was still quite a lot of it and it seemed to me that the ridge got a little long near the bottom. The hut looked very good when I wandered in at 6.20. Adolf, who had been there quite a while, had a bountiful dinner prepared which we disposed of with speed and efficiency. Nobody even mentioned going down to Grindelwald that night and I fell asleep dreaming of the statement in Adolf's guide's book that "one could always count on Rubi to choose easy and short climbs suitable for a lady."

The climb that seemed the most exciting in anticipation, because of its reputation, was the southwest ridge of the Wetterhorn (September 6th). It had been done only once, on August 24th, 1928, by Mr. Samitaro Uramatsu with the Grindelwald guides, Emil Steuri and Samuel Brawand.[1] They had reported difficulty owing to loose rock and an unfavorable downward tilting of the strata. We decided, therefore, to be provided in case of retreat with plenty of iron pitons and extra rope and engaged Hermann Steuri to go with us as porter to carry all these impedimenta.

On the afternoon of September 5th, a brief thunderstorm overtook us just before we reached the Gleckstein Hut, and there was another shower later in the evening. The stars were out, however, at half past two the next morning, and all signs pointed to another day of that glorious, clear weather which we enjoyed for about three weeks last September. At 3.05 we left the hut and about three hours later we stopped at the farther edge of the Krinne Firn on the rocks of the ridge. Here we left two of our three ice-axes and two of our three pairs of nailed boots and continued in *kletterschuhe*. Although this seemed then an excellent idea, we were reckoning without our thunderstorms, for when we reached the ridge and glanced over, we saw the whole north face thickly plastered with fresh snow! However, we felt that there was no use turning back before we had to, and we therefore continued, traversing on the north face to regain the ridge above the first pitch. It was melting and little rivulets streamed down, adding a totally unnecessary difficulty to the climb-

[1] See *A. J.*, XL, pp. 380-382 for photographs and a description of the route.

ing. A little farther up, we found ice under the fresh snow and were obliged to proceed very slowly and carefully. Adolf's skill showed up particularly on the last two or three hundred feet before reaching the ridge, where a hard ice-glaze over loose rocks demanded very delicate climbing on the part of the leader. Shortly after eight, we were on the ridge, which proved to be everywhere covered with two or three inches of fresh snow. It was about time, we all agreed, to begin driving in the pitons and roping down. We knew that there was a "difficult pitch" ahead of us, which we should probably not be able to do under these conditions, but thinking that we might as well have a look at it anyway, we walked along up the ridge until we reached the gendarme in question. While Rubi turned to the right to do a little exploring, Hermann traversed to the left (north) and started up a long chimney which he reported was "ganz leicht." Before we knew it he was at the top. When my turn came, I too discovered that the difficulty of this climb had been somewhat exaggerated. It is true that the rocks were very rotten, and moreover, all the holds were covered and some of them concealed by fresh snow and ice, but they simply needed sweeping off a little. On the farther side of this gendarme a little snow col gave us a slippery piece of work, since we had to cross it with only one axe and in wringing wet ***kletterschuhe***. From the other side of the snow col to the summit was straight-forward going and we arrived on top at 10.30. I was, of course, very glad that we had continued and added this peak to my varied and very enjoyable Oberland experiences.

## The Ascent of Orizaba

ROLLIN T. CHAMBERLIN

ON the brow of the Mexican Plateau, overlooking Vera Cruz and the Gulf from a distance of three score miles and ten, stands the isolated volcanic cone, Orizaba, the loftiest peak in North America, outside the Alaskan region. Towering to a height of 18,300 feet, and sending down the radiance of its brilliant white apex—often from far above the clouds—its native name Citlaltepetl, Mountain of the Star, was not unfittingly chosen by the imaginative Aztecs. While now and then its summit snows have been trodden since the first ascent in 1848,[1] the fascination of rarity has not been replaced by familiarity, as with its rival, Popocatepetl.

It was this fascination that drew away from the International Geological Congress, then in session at the City of Mexico some years ago, four truants from the sober lessons of science:—Drs. J. E. Wolff of Harvard, H. F. Reid of Johns Hopkins, A. P. Coleman of Toronto, and the writer. The Ferrocarril Mexicano took us to Chalchicomula, a quiet provincial town at the foot of the great volcanic cone. Harvard now utilized his Spanish and diplomacy, which negotiated some mozos and mules, a rurale and saddle horses, eggs, jam, bread, blankets and other necessities.

On a bright morning in September our little cavalcade drew out from the plaza of Chalchicomula and wound easily among the lower foothills, passing a few picturesque hamlets. The beauty of Orizaba's snow-clad cone glistening in the loveliness of the early Mexican morning, was so captivating that we again and again dismounted to catch photographically some new expression of the grand mountain. The superb peak rose nearly 10,000 feet above us, majestic and commanding, but gentle in aspect. At length we entered a grand, open forest of stately pines which strongly reminded me of those charming forest reserves which cluster about the San Francisco peaks in Arizona and extend from that old volcanic pile to the Grand

[1] Orizaba, 18,314 ft., is the third highest peak in North America. It was first ascended in 1848 by William F. Reynolds, a lieutenant of engineers of General Scott's army, accompanied by one Maynards and several soldiers. They left an American flag on the summit with the date carved on the staff. This was found by a Frenchman, A. Daignon, in 1851.—Ed. *A. A. J.*

Canyon. We rose gradually amid the pines, until, at an elevation of about 12,000 feet, we entered a gulch cut in the talus slope, which led up to the Col de Negra, between Orizaba and the Sierra de Negra, a lower companion peak. On the Col a chilly east wind, sweeping up a mass of vapor, obscured the eastern view, but bands of delicate blue sky between strata of dainty feather clouds near the horizon offset, in part, the loss of a view of the lowlands and the Gulf. We were now 13,000 feet above the Gulf of Mexico and yet, being within the tropics, this was just at the timber line.

Leading down from the upper cone of Orizaba to the Col is an old tongue of lava, bordered with high, steep sides, in whose east wall a singular little cave has been formed, perhaps by the outflow of lava after the exterior of the flow had cooled. This was selected as our refuge for the night.

An hour before sundown we commenced to put everything in order for the early morning start, as night comes on quickly in the tropics. Supper was eaten at dusk, and for a time we sat in front of the camp fire absorbing its warmth before trusting ourselves to the rock chamber. The rurale was now a picturesque sight; seated motionless on a box, with arms folded, a great red zerape wrapped about him up to his eyes, and a tremendous sombrero pulled down over his brow, he suggested thoughts of buccaneers and buried treasure, rather than an effective guardian of the law.

At an early hour we retired to sleep between sheets of lava which had not been changed since last occupied, as one of the party suggestively remarked. The roughness of the uneven rock was tempered by some plaited mats, brought up for the purpose. Upon these we placed our blankets, rolled up in them, and were ready for sleep, which did not come. We were all very restless; probably because of the unaccustomed altitude, which produced an accelerated pulse. Harvard was the fortunate possessor of a camproll with canvas, and occupied one end of the cave; into the space between his canvas bag and the opposite wall, Toronto, Johns Hopkins and Chicago were closely packed. If Toronto found the topography of the underlying rock surface too rugged for long endurance, it was necessary for Johns Hopkins and Chicago to turn with him. Harmonious action in intercollegiate relations was never better observed.

At 3:40 we were called by the mozo chief. A film of lofty cirrus clouds had overspread the sky during the night, through which only the brighter stars were now visible, while the waning moon cast

but a feeble, uncertain light upon the landscape. The great white peak was dim and ghostly. We had breakfast and waited for the dawn. At 4:40 we were off, just as the first, faint traces of coming day could be detected in the eastern sky. For a time we advanced in silence up a broad basin between two long lava streams until, working toward the right, steeper slopes were encountered. It was now broad daylight, for the day broke quickly. The sunrise which we had expected to be brilliant was cold and colorless. The illumined quarter of the sky was partly hidden by one of the serrate peaks which stand forth prominently on Orizaba's southern flank. The reflected rays of the sun were first seen on the Sierra de Negra; Orizaba itself, if as yet lighted up, was touched only on its eastern side, out of the range of our vision; but a few moments later a simple phenomenon told us that Orizaba also was in full sunlight, for, looking westward, the huge shadow of the great peak was seen to be projected against the thin, feathery, cirrus clouds in the form of a dark triangle whose apex rested directly above Popocatepetl, the beautiful but less majestic rival of Orizaba, 100 miles away. The sister volcano, Ixtaccihuatl, also stood dull, for a time, in the right-hand corner of the triangular shadow.

Pushing onward, we soon reached isolated patches of snow. It was now a quarter past six, and we had attained an altitude of 15,050 feet. From our previous inspection with field glasses, we had decided that the more easterly of two roughly parallel ridges on the southern side of the cone, would be likely to prove the best route to the summit. To gain this arête, a rough lava cliff must be surmounted, and this we proceeded to attack. The climb proved an antidote for the morning's chill; a feeling of exuberance quickly followed the warmth of the exercise. A few steps which had to be chopped in the hard snow only added zest to the work.

A halt at the arête, gave an opportunity to enjoy the charm of the early morning in the midst of snow and ice. The stifling dust of the hot plains below, with their depressing, dulling effects, seemed but the dim memory of another world. At the point where we all came together on the crest of the ridge, the aneroid registered 16,000 feet. Johns Hopkins remembered that 7.15 was about breakfast time at home, and loyal to our leaders in serious matters like this, we fell to, and a second breakfast was soon dispatched.

Resuming the climb, we mounted the ridge rapidly over rocks and snow. While the arête was narrow in places, allowing little

*Photo. R. C. Chamberlin*

LOOKING DOWN ON SEA OF CLOUDS FROM CRATER RIM OF ORIZABA

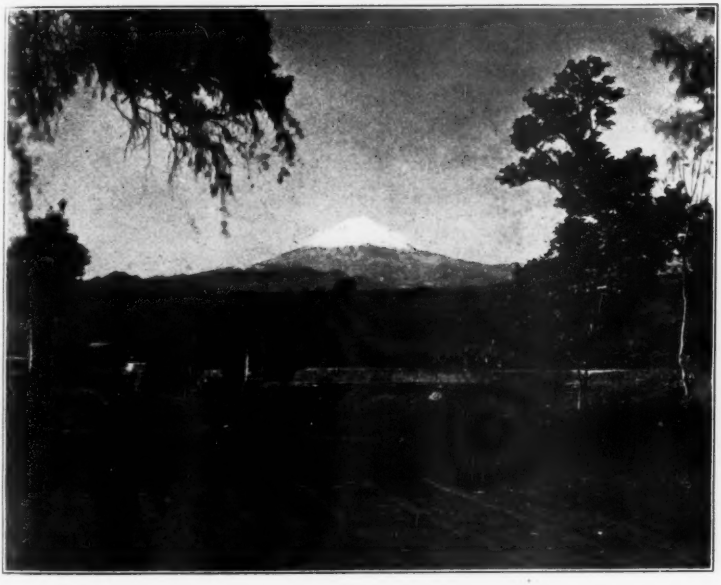


*Photo. W. J. Land*

ORIZABA FROM JALAPNA ON THE NORTH EAST

deviation from the crest, we were satisfied with it as a route, for it pointed straight toward the summit, though it became merged into the cinder cone before reaching the top. While yet clambering upon it, we seemed already to have gained an immense height, and Harvard was called upon to read the aneroid. "Seventeen thousand seven hundred feet, and only four minutes past nine." We were now as high as Popocatepetl and were perhaps already looking aslant the crown of Orizaba's rival, still unclouded a hundred miles to the west. That must needs be celebrated by another breakfast. We all huddled down amid the rocks, on the lee side, as much as possible, to escape the piercing east wind, and ate another round of bread and jam.

The topography of central Mexico was by this time seen to great advantage. To the west lay the belt of flat plateau, along which we had come from the City of Mexico. Popocatepetl and Ixtaccihuatl seemed less stupendous than when viewed from the plain. They now appeared very nearly of the same height. South and southwest the characteristic topographic features of the whole Mexican plateau, from the Capital to the Isthmus of Tehuantepec, greeted the eye in a single vista. A succession of long, narrow, generally parallel ridges, running northwest and southeast, and rising out of the common floor of the plateau, which did not appear to vary greatly in altitude, told in which direction the structural axis of the continent lay. The Pacific Ocean was not visible, but its shores can lie at no very great distance beyond the last ridge. To the southeast, and near at hand, we looked down upon the abrupt descent to the plain of the Gulf of Mexico, a splendid sight, for Orizaba stands alone at the very edge of the plateau, on the brink of the declivity. The plateau border has been dissected by the erosion of the ages, and fashioned into remarkable gorges which have become the chief pathways from the upper Mexican world to the lower. The spectator on Orizaba, perched thus above the battle front of this contest between the plateau and the inexorable erosive processes, may well ponder thoughtfully on the magnitude and persistence of the silent struggle, and its inevitable outcome. Even Orizaba itself must, in time, be worn down and swept past the low coastal plain into the Gulf of Mexico.

Before starting again we put on our colored goggles. It was high time, for the tropical sun had now drifted around behind and mounted over us, until its glare on the snow was intense. Upon

reaching the point where the ridge merged into the summit cone, we traversed the snow obliquely to the western side of the volcano.

Our leader, ever desirous of easing the labor of the ascent, led in a zig-zag course back and forth across the snowy slope, gaining a little in height with each wide detour. Upward progress was now slow. For a time the last rocks—an abrupt cliff just beyond which we knew the summit lay—seemed to hang steadily at the same height above us. Still, we were conscious of drawing but little on our store of energy and, with an abundance of time before us, we felt certain of reaching the top in a condition fit for the thorough enjoyment of the climax of the trip. The snow still hard, required steps to be chopped here and there. At length, when nearly abreast of the rocks for which we were aiming, the true summit suddenly came into view for the first time since we began the climb. On the southwest slope, about a hundred feet below the summit, was a small area of loose andesitic debris, free from snow at the time of our ascent. This we soon attained, the barometer indicating its altitude to be 18,400 feet. True to the dictum of a sage friend, "Eat often and little when under strain," we here sat down to a fourth breakfast, or a first lunch, if you please.

The real summit was now so near that it appeared possible to carry the last assault at a single spurt, but one found himself stopped short, again and again on that brief snow slope, by a sudden, temporary fatigue which bordered on exhaustion. Usually a halt of thirty seconds sufficed for a complete restoration from a state verging on collapse to unimpaired strength. To recover from the same degree of breathlessness at sea level would require several minutes. This experience seems to show that, while one may mount to an altitude of over 18,000 feet in perfect comfort, by advancing leisurely in gentle zig-zag inclines, it is quite impossible to maintain a fast pace directly up the slope, even though the climber be in good athletic training. The supply of oxygen in the attenuated atmosphere at this height is insufficient to sustain the effort. At half past eleven the summit of Orizaba was won.

During the latter part of the ascent, the usual midday clouds had been forming rapidly in thick, foggy masses in the lee of the peak —the side of our approach—and had blotted out much of the vista over the plains. The prospect had become limited. We could only gaze into the weird, screening mists which condensed a little to the leeward of the peak, but not until they had passed it. They were

not without their own fascination, but were viewed with apprehension, lest they should extend themselves to the windward and destroy the panorama from the summit.

We were not, however, to be disappointed. When we reached the summit, a wide, open sweep of vision to the north, east and south, over cloud and landscape, met every expectation. But most striking was the scene at our feet. From below, the summit of the mountain had appeared a simple peak; it was, in truth, but a point on the rim of a splendid crater, whose brink we had reached with unexpected suddenness. The rim was narrow, and its inner walls, save for a short, snow-covered slope, dropped sheer, a thousand feet or more to the bottom of the pit which was partially filled with snow.

The sheer precipices of the buff-tinted tuffs of the crater walls, upon the rugosities of which snow had lodged here and there, were fringed above by graceful, snowy domes and cornices. A riotous assemblage of clouds coming up from the Gulf arrayed themselves beyond the opposite crater wall and gave to the resplendent cauldron a superb setting. Instead of a continuous envelope, the vapors marshalled themselves into cauliflorian embossments and gigantic swelling domes, a few of them in the distance boiling up to elevations greater than that of Orizaba.

To the geologist it does not seem a very long time since the fires of the great volcano were extinguished, as the form of the cauldron is still intact, and is perhaps unsurpassed in its perfect outlines and rugged beauty.

We estimated the yawn of the crater mouth at 1500 feet, while the bottom of the crater was put at 1000 feet below us, though it is not improbably more. It appeared quite inaccessible without the extensive use of ropes.

It was probably while on the rim, during the hottest part of the day, that Orizaba exacted the only penalty imposed upon us for invading its sacred heights. With less than half the earth's atmosphere above us, and a still smaller portion of the heat-and-light-absorbing constituents, aqueous vapor and carbon dioxide, to intercept the solar waves, we were assailed by an intense actinic light which the snow reflected with scarcely reduced intensity. No ill effects were noted at the time, but painful, blistered faces, the penalty of the smooth-shaven members of the party, and a pair of inflamed eyes, the price exacted of another, served as a continual reminder of the trip for several days after. In my own case, lips and face forbade

laughing, except with caution, for a full week—no small trial while traveling with sprightly companions.

After another lunch, we shouldered our packs and commenced the descent, for which we chose the smooth snowy slope that lay to the east of the ridge up which we had toiled. The refractory snow had by this time softened sufficiently under the powerful insolation to render glissading safe and easy, but it had not melted so as to wet the feet. We strode rapidly on to camp, where preparations for departure were speedily made. A shower greeted us soon after leaving its shelter, but the weather quickly mended, permitting us to ride leisurely down through the picturesque woods. Darkness had fallen before we came within sight of the lights of Chalchicomula.

## Travel and Mountaineering in the Caucasus

Wm. Osgood Field

IT is only within the last seventy years that foreigners have gone to the Caucasus to see the region, explore its valleys and climb its mountains. At first conditions of travel were very bad and some sections were quite unsafe. However, toward the end of the last century, this improved and the mountain people became sufficiently law-abiding to make it possible for mountaineers and travelers to visit the region. This state of things continued until the revolution of 1917 when all forms of organized central authority came to an end. A period of chaos ensued which lasted until the Georgian Rebellion of 1924 when the Reds finally emerged victorious and proceeded at once to restore law and order and to improve political, social, and economic conditions. During these years few outsiders came to the mountains, for the whole of Russia was in a terrific state of unrest and the Government refused admission to almost all foreigners unless they were on a special mission. By 1927 these conditions had sufficiently improved so that a few travelers and tourists were able to come to Russia and thus began what has now become a regular and ever-increasing tourist traffic.

Today there is no serious obstacle in the way of almost any person entering the U. S. S. R. Once again the Caucasus district is open to foreign tourists and mountaineers; more so in fact, than it has ever been before. And yet, strangely enough, during the last three years no British or American mountaineers, and only a few travelers, have visited this very interesting section of the world.

One may ask just what the Caucasus Mountains have to offer the traveler or mountaineer that he would not find in the Alps with a great deal less trouble. To answer this briefly is a rather difficult task, but we may enumerate some of the reasons which are likely to appeal to most lovers of mountain regions.

In the first place, let us glance at the mountains themselves. These, as we know, are of great size, culminating in the tremendous extinct volcano of Elbruz (18,470 ft.). No less than ten peaks rise to greater heights than Mont Blanc (15,781 ft.), the monarch of the Alps, and the list of those exceeding 14,000 ft. is a long one. This in itself means very little, unless we add that the actual peaks, in general, rise from about the same altitudes as those in the Alps, and

that at present they are more heavily glaciated.* Although there is no ice-stream in the Caucasus as large as the Aletsch Glacier of Switzerland, this is not due to a lesser amount of snow and ice, but to the fact that the higher valleys of the Caucasus fall away so steeply from the névé fields as to make it impossible for glacier tongues to extend very far before reaching an altitude too low for their existence. Among the higher peaks there is much finer ice scenery and far more of it than can be found in the Alps. Elbruz alone supports on its vast slopes snowfields with a total area of about 83 sq. miles. Neither must one think that in grandeur of outline these peaks need bow to the Alps, for almost every Alpine peak has its counterpart in the Caucasus, usually on a far grander scale. Indeed, in many ways, the mighty peak of Ushba rivals and in some respects even surpasses the Matterhorn.

In the second place, the Caucasus Mountains have much to offer of beauty and interest among their deep and sombre valleys. Nearly each one is inhabited by a group of people totally different from those in the next valley as to language, customs, and history. All have peculiarities and qualities of unusual interest to Europeans and Americans. So, instead of the charm of the Swiss or Tyrolean peasants, the Caucasian traveler has before him a people more primitive, but far more varied and more stimulating intellectually.

In the third place, contrary to the general opinion of those who have never been to Russia, travel in that country for the average person is quite as agreeable and safe as in the rest of Europe. True, the distances are longer, but the ordinary sleeping accommodations are as a rule more comfortable and far less expensive. Thus the Caucasus may be reached easily and pleasantly. Within the mountains the traveling conditions are varied, for in many places there are as yet only horse trails. However, these can be easily negotiated and after all, to a true mountaineer, is not the approach to a glorious peak far more thrilling and satisfying up a lonely mountain trail than in a puffing railroad train or a crowded motor-bus?

In this region may be found a great variety of climbing. Some of the peaks have been scaled enough times so that a fairly definite route of ascent has been worked out. However, there are few of these, and in general, climbing in that region may be classed as exploratory. It is true that most of the big peaks have been climbed once or twice, but there is still a great deal to learn about them and many new routes to be found on their slopes. Then, in the more remote sections

of the mountains, one can still find virtually unmapped territory with some splendid unnamed and unclimbed peaks.

The section of the Caucasus which contains the highest mountains and where nearly all the real Alpine climbing is to be found is about 200 miles long, and twenty to thirty miles broad. This area has many mountain groups, some of which can be reached very easily. For instance, the foot of Elbruz (18,470 ft.), or Kasbek (16,546 ft.), the highest and sixth highest summits, respectively, may be reached by automobiles and the ascent made with but one night's stay in a shelter high up on the mountain. In fact, so easy is it to get to these peaks, that given perfect weather conditions, either of their summits can be attained on the fourth day after leaving Moscow.

Other peaks, such as Ushba (15,409 ft.), Tetnuld (15,918 ft.), Sh'hara (17,038 ft.), Dykhtau (17,052 ft.), Koshtantau (16,880 ft.), or the Adai Khokh and Klukhor groups would require anywhere from three to six days on horseback to reach their bases. Each year, however, sees more automobile roads being built or projected, so that even now we need look forward but two or three years to see a highway extending to within a day's journey of several of them.

As may be expected, the larger peaks present varying problems, depending usually upon the snow conditions which in the Caucasus are unusually hard to determine. Elbruz is a snow-covered volcanic cone which offers no great technical climbing difficulties. Its great altitude, however, is always a factor to be considered, because at 18,000 ft., the air is extremely rarified, the temperatures are likely to be very low, and on such an immense isolated and heavily glaciated mountain, storms are liable to be frequent. The other great extinct volcano, Kasbek, also affords a climb devoid of any serious mountaineering obstacles. But with the exception of these two peaks, the highest summits are fairly hard to attain. Judging by the accounts of the previous ascents, Dykhtau, Sh'hara, Koshtantau, and the summits of the Adai Khokh all seem to be unusually formidable, whereas such peaks as Tetnuld and Gestola, although presenting a number of interesting problems, appear to be somewhat easier.

A few peaks are exceptionally arduous, of which Ushba is the most prominent. This great peak, about which a whole book might be written, is one of the world's most striking mountains. Its two summits have both been reached; the North Peak twice; the South Peak, which is probably slightly higher, three times; while forty or fifty other attempts have failed. The climb is up a series of cliffs

or steep knife-edge ridges, both so long and exacting that one or more bivouacs are required on the upper reaches of the mountain. Other peaks in the region afford as difficult climbs, some of which have been done, others not even attempted.

None but a fully equipped and strong well-organized party should attempt the ascent of any of the big peaks. Its members should be prepared for any ordinary contingency and quite able to take care of themselves on unfamiliar ground under bad weather conditions, or when overtaken by darkness. In general, the natives should not be depended upon for any real mountaineering, for although some of them are experienced hunters, and fairly good climbers, they are apt to be careless and a poor addition for any serious or dangerous climb. However, as porters and local guides, they can be most valuable and dependable.

In the early days of mountaineering in that region, many of the big peaks were climbed by parties led by Swiss guides, but in more recent years, the climbing for the most part has been done guideless. Nevertheless, the Swiss guide is still a most valuable asset to any climbing expedition, and should be employed by any mountaineers who are not of first-class calibre, if they wish to attempt any of the higher peaks. With such a guide, many of the finest summits may be reached by even mediocre climbers with all the safety that would attend their efforts in the Alps. The problem of bringing a Swiss guide into Russia should not be a difficult one, and I was assured in Moscow that there was nothing to prevent such an arrangement being made.

The climbing equipment needed in this region depends a good deal on the type of work which is to be attempted. In general, one should have the minimum of a light camping equipment for use in high bivouacs, which in the Caucasus have to take the place of the Alpine hut. This does not require a very extensive outfit, and its purchase should not be a difficult or expensive task. In other cases where a party wishes to roam about extensively and to be entirely independent of native hospitality, a complete camp outfit, which can be transported on pack-horses, or by native porters is required. Ordinary food can be procured from the local inhabitants in most districts, but this is not suitable for high mountain work, where bulk and weight must be avoided. For this, a supply of tinned meat and dried vegetables is needed. These and other provisions or equipment of a specialized nature should be bought outside of Russia, as in most

*Photo. W. O. Field*

SOUTHERN FACE OF SH'HARA (17,038 FT).

*Photo. W. O. Field*

TETNU'LD (15,918 FT.) AND ICE FALL OF ADISH GLACIER FROM THE EAST

*Photo. W. O. Field*

SWANETIAN MOUNTAINS AT 10,000 FT.

*Photo. W. O. Field*

PACK TRAIN CROSSING DONGUSORUN PASS (10,493 FT.)

Dongusorun Peak (14,603 ft.) in distance.

cases they cannot be procured there even in the Moscow stores.

A climbing trip to the Caucasus seems a complicated one to plan, for there are many problems that one feels can only be answered by experience, and it seems rather risky to undertake such a bold adventure. However, I do feel that this uncertainty and these anticipated difficulties are over-emphasized and really not as great as one might imagine. As I have intimated, two of the highest peaks, Elbruz and Kasbek, may be ascended by two or three climbers with only their personal equipment and without any highly organized expedition or intricate preliminary arrangements. Several other mountain groups may be reached with only the added trouble of having to hire a few horses, and perhaps porters, both of which can be procured at a cost so low that daily expenses should not greatly exceed those of a season in the Alps.

As usual, in the case of such a mountain range, it is unwise to make any dogmatic statement regarding the weather. On the whole, I should say that one could expect it to be at least fairly good, and unless one were after an especially "temperamental" peak, like Ushba, there should be little danger of weather being so consistently bad that no climbing could be accomplished over a period of several weeks. My experience has been that during forty days spent in the Caucasus, or within sight of its peaks on two trips, only five of them were stormy, and the rest almost all suitable for high mountain work. Other people, of course, have had sadder experiences, but in general, fear of bad weather should not be allowed to influence anybody to stay away from that region.

A word should be added in regard to the lesser peaks, many of which afford quite easy climbs with, in some cases, finer views than can be had from the highest peaks. These lower summits, some of which rise to altitudes of over 13,000 ft., are well worth climbing, and can be negotiated by mountaineers who are unprepared to attempt any major ascents. Therefore, let no keen mountaineer or traveler stay away because of lack of climbing skill or inability to organize a strong party. A visit to the high valleys is in itself a worthwhile undertaking.

The Caucasus may be approached from any direction, but for the convenience of the traveler, I should suggest going first to Moscow, then southward to the mountains. In Moscow, all preliminary arrangements can be made, and much useful information obtained. Also, in that city, are a group of enthusiastic mountaineers forming

an Alpine Section of the 'Tsekubu', the Soviet Society of Scientists. These men can be of the greatest help and would be found most obliging.

One of the most interesting localities to visit is the little district of Swanetia on the southern slope of the Central Caucasus. In the immediate neighborhood are most of the highest peaks; Elbruz is but a few miles off; Ushba, Tetnuld, Gestola, Sh'hara, and their neighbors rise directly above the upper valleys; while just beyond, a day's journey away, stand Dykhtau and Koshtantau. Only the Adai Khokh Group and Kasbek, of the big peaks, are too far removed to be reached in two days from these Swanetian valleys. In one section, called the Central Group, there rises within an area ten miles square, over twenty distinct peaks exceeding 14,000 ft. in altitude.

In addition to these magnificent mountains, we find in Swanetia one of the most interesting groups of people in all the Caucasus. Foremost among their picturesque qualities are the little fortifications in which each family lives. These date from sometime previous to the twelfth century, when a clan organization was developed in which each family group was forced to fortify itself against hostile neighbors. These enemies were not only greedy princes with their conquering armies, but also near neighbors with whom blood feuds and vendettas were frequent. The latter raged through this country unchecked until the latter half of the nineteenth century; then they sprang up again between 1917 and 1924. However, within the last few years, the feuds have been suppressed and a responsible government set up. But the outward aspect of the country has changed little and the towers and castles remain dotted about the landscape, sometimes singly, and sometimes in groups and clusters of fifty or sixty.

In spite of the fact that no English and American mountaineers have gone to the Caucasus during the past few years, there has nevertheless been considerable climbing done there. German, Italian, and Russian parties have accomplished some very fine mountaineering, culminating in the first ascent of the imposing peak, Giulchi (14,680 ft.), the third ascent of the great south tower of Ushba, and several other noteworthy feats.

Thus, in 1930, we find the Caucasus a very excellent and quite easily accessible climbing ground, still possessing many untrodden summits and unscaled ridges. It can truthfully be said that never

*Photo. W. O. Field*

MAIN TRAIL TO SWANETIA IN THE GORGE OF THE INGUR RIVER

*Photo. W. O. Field*

TOWERS AND FORTIFIED HOUSES OF SWANETIA

*Photo. © Fred Inabnit*

SAWTOOTH RANGE FROM GOOSE LAKE.
Silvertop Mt. (left), Pass to Grasshopper Glacier (right).

*Photo. W. O. Field*

USHBA

before has mountaineering in that region been more within the reach of the average person than it is today. And certainly American climbers would find a warm welcome there, as well as in other parts of the Soviet Union.

## REFERENCES

The reader who wishes to study more about the Caucasus, especially the mountaineering aspect, should refer to the following: "The Exploration of the Caucasus" by Douglas Freshfield, 2 vols. 1896. Beautifully illustrated by V. Sella, and altogether the most interesting and complete account of the early period of Caucasian mountaineering. The "Alpine Journal," Vols. 17 to 30. Here may be found a record of almost all subsequent ascents in the Caucasus until 1915. For information concerning climbs made since the War, the reader should refer to German mountaineering publications.

## The Beartooth Mountains of Montana

NORMAN CLYDE

ALTHOUGH situated only a few miles from the Yellowstone National Park and containing the loftiest mountains in Montana, the Beartooth Mountains are known to comparatively few. Their most widely advertised feature is the Grasshopper Glacier, but in addition to this, their deep gorges, beautiful lakes and high mountains render them of interest both to the general vacationist and to those of mountaineering proclivities. East Rosebud Lake and the canyons above them are praised by those familiar with them. It is, however, to the higher portions of the range to which I wish to call attention.

To any who have stood on the summit of Mt. Washburn or other of the higher mountains of the Yellowstone Park, a lofty range of mountains to the northeast—second to the Tetons,—are the most conspicuous ones within view. From such vantage-points, their highest mountain, Granite Peak, is plainly visible. The approach to the range from the park is by the road which runs through the northeastern corner of the park to the quaint old mining town of Cook City. From it to the Grasshopper Glacier Camp is only about ten miles (towards the north). The road leads through a beautiful park-like region of open meadows and groves of spire-like fir and spruce—notably of the balsam and Engelmann varieties. As it gradually climbs higher and winds through boulder-strewn areas, the trees dwindle in size and number until near timber-line, it emerges from a narrow ravine and enters an oval basin several miles in length and surrounded by high and almost treeless mountains. In the middle reposes Goose Lake—a lonely expanse of water, perhaps a mile in length, with grassy shores which sweep up to steep mountains, to which for a distance of perhaps 500 feet above the lake a few dwarf firs and spruces cling in matted clumps.

The mountains possess a barren impressiveness. They rise some 2,000 feet above the lake which is about 10,000 feet above sea-level. To the southwest is a series of them called locally the Fox and Goose Ridge; to the east, from south to north, Mt. Zimmer (11,610 ft.), Avalanche Peak and the Sawtooth Mts. To the moun-

*Photo. N. Clyde*

SILVERTOP MT. FROM THE EAST

Ascent made up left shoulder.

*Photo. N. Clyde*

MT. WILSE ACROSS GRASSHOPPER GLACIER

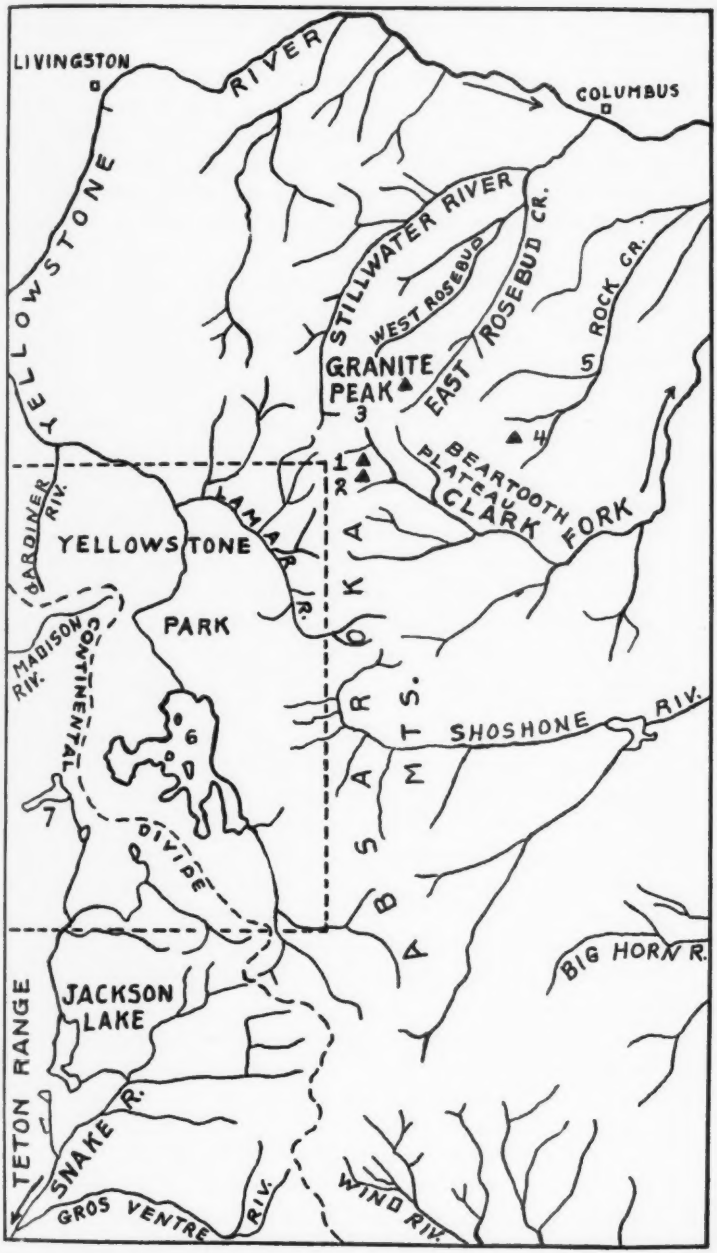
©*Fred Inabnit, Dec. Photo, Baumgartner Studio* Scale approximately 22 miles to 1 inch.

RELIEF MAP OF PART OF YELLOWSTONE PARK, WYOMING AND MONTANA.

Arrows show location of Grasshopper Glacier, in the compact group of the Beartooth Mts.

NOTE. White on above mountains does not represent glaciers or permanent snow.

KEY TO RELIEF MAP




*H. P. Del.*

1—Pilot Pk., 2—Index Pk., 3—Goose Lake and Grasshopper Glacier, 4—Rearguard Pk., 12,350 Ft., 5—Red Lodge, 6—Yellowstone Lake, 7—Shoshone Lake.

taineer Mt. Zimmer and Avalanche Peak afford interesting scrambles; the Sawtooth group with the exception of Glacier Peak offer good rock climbs, probably made but once. This is especially true of the most northerly of the group, Silvertop Mt., so-called from the gleaming snow on the summit and from the shine of water flowing down the rocks in the early summer. The predominant rock of the range is granite.

Across a low pass a mile or so from the resort, lies the Grasshopper Glacier, so-named from the myriads of prehistoric grasshoppers imbedded in the ice and strewn about on the surface. Incidentally, however, the phenomenon is common to a score of other glaciers in the range. From the glacier one can readily climb Avalanche Peak to the southwest and Mt. Wilse to the southeast, or by leaving it and traversing several smaller ones, scale Silvertop Mt., towards the west. The glacier contains numbers of crevasses, especially on its upper portions, but no ice-falls, except possibly one at its lower extremity. An extremely interesting feature, on the occasion of a visit several years ago, was a large *moulin* several rods in diameter and of unknown depth. Its size, its exquisitely colored and beautifully sculptured walls, the great icicles hanging from them and the column of water shooting down into it, rendered it one of the finest which I have seen during considerable experience among the glaciers of the north.

The views obtained from the summits of the peaks enumerated above are impressive. To the east they extend along the axis of the range past Granite Peak to the plains of Montana; to the southeast and south across a timbered basin to the sharp and isolated Pilot and Index Peaks and past them to the right along the Absarokas extending far down into Wyoming with deep, green valleys and snow-capped peaks; to the southwest and west across the Yellowstone Park, with Yellowstone Lake shimmering in its midst and perhaps a glimpse of the Tetons rising beyond it; to the north across various ranges of undulating mountains.

From a camp near Goose Lake several years since, I made ascents of all of the Sawtooth Mts. Three of them, including Silvertop Mt., I found to be thrilling but not extremely difficult rock climbs. The ascent of the first of the group, Glacier Peak, involves no real mountaineering, but the others have no easy approach. The following sketches are from my notes on the climbs.

## Sawtooth Peak No. 2

On a dismal day in the latter part of August as I was strolling along the margin of Goose Lake I carefully scanned the second of the Sawteeth—one which for several days had attracted my attention. Finally, although the weather was unfavorable and the hour late, a sudden impulse incited me to attempt to scale it. From my camp it looked impossible, but I well knew that peaks appearing so from a distance, when once attempted are often found to be scalable, sometimes with comparative ease.

In order to reach its base, I found it necessary to cross a ridge and descend about a thousand feet into a gorge. I then traversed a strip of rough talus to the foot of a couloir which appeared feasible. It proved to be easier than anticipated until I neared its upper portion which became so narrow and steep that I scrambled up the wall and worked along its face, where an abundance of holds rendered the climbing interesting but not hazardous. Within a short space I reached the crest of a narrow arête and, somewhat to my surprise, came within view of the top of the mountain only about fifty yards distant. Although the connecting knife-edge dropped away hundreds of feet on either side, no difficulty was experienced in traversing it to the highest point, apparently attained for the first time.

To the east and west it dropped precipitously to a glacier belonging to a chain of which the Grasshopper, covering several square miles, is the largest. Tucked away in the sheltered cirques of the range occur perhaps thirty of them, small residual glaciers, deeply crevassed in places, but in the main affording few obstacles to the ascent of the peaks rising above them. Farther to the north in the group stood nameless Sawtooth, No. 3, and beyond it, the highest of all, a square-topped peak with apparently unscalable walls, called Silvertop Mt. To the east lay profound gorges with lofty, rough-hewn peaks towering high above them, culminating in Granite Peak about 12,850 feet in elevation, half a dozen miles away.

Heavy clouds hanging over the peaks imparted a tone of sombre grandeur to the sublimely rugged panorama. To the horizon in every direction extended range after range of mountains which eventually faded from sight in the clouds that obscured the sky. Immediately below, sheer cliffs and crevassed glaciers attracted my attention. To the northwest ran a deep canyon along whose lower course could

be descried the spires of Engelmann spruce and balsam fir ranged in serried ranks. In the same direction also, great masses of clouds were lowering and advancing toward the peak upon which I was sitting. I could not afford to tarry longer.

After descending the face of the peak and the wall of the couloir, I continued down the latter. While I was nearing the base of the peak, the storm swept over the summit and began to extend rapidly down the mountain-side. Hurrying across the talus, I reached the bottom of the gorge and began to climb it. In the meantime the clouds had lowered until they filled the bottom of the canyon and were rolling up toward its head; when I gained the pass, they were close behind. It was already growing dark. Hurrying down the slope, I arrived at a miners' camp just as torrents of rain began to fall—the prelude of an all night storm.

## Sawtooth Peak No. 3

The nameless Sawtooth immediately north of the one already ascended also afforded an intriguing climb. On a pleasant morning I left camp, crossed the pass to the north of Goose Lake, dropped down the gorge and scrambled up to the base of a couloir south of the pinnacle. Without encountering any special obstacles, I gained a notch to the south of and several hundred feet below the summit. By scrambling up a crack in a rather sheer wall, I reached broken rock up which I continued with comparative ease to the top, apparently previously unclimbed.

Warm sunshine fell on the craggy summit and numerous masses of white clouds were floating in the blue sky. My lofty perch commanded almost the entire range. From the southwest it sweeps up for the most part gradually, to its axis some fifty miles in length. North of the crest precipitous slopes drop away to deep gorges which drain into the East Rosebud River, a tributary of the Stillwater River which flows into the Yellowstone. North of the East Rosebud other, but less numerous, high mountains occur. In the entire range there are possibly thirty peaks which attain elevations ranging from 11,000 to over 12,000 feet above sea-level.

For an hour or more I remained on the summit. In the meantime numerous clouds had sprung up in the west and were bearing down upon the mountains. As I did not relish becoming involved in an electric storm on the narrow summit of the pinnacle, I began

to retrace my way down. Having arrived at the base of the mountain, I stopped for a time at a brook. The transient storm having hurried past the mountain tops, the sunshine fell warm on the flowery meadow through which the crystal brook ran with silvery murmur. Presently, however, I was on my way again, up the gorge, over the pass and across the basin to camp.

### Silvertop Mt.

There still remained Silvertop Mt. As a result of a rather careful survey, it appeared best to endeavor to scale it from the glacier to the east of it. From Goose Lake, I followed the trail to the pass above Grasshopper Glacier and then, swinging sharply to the northwest, continued across a glacier lying northeast of the Sawtooth Range. Masses of white clouds hung above them, the sunshine was warm and the air rather sultry. From time to time rocks fell from the crags and ricocheted down the glacier, most of which was free from snow. In one instance a boulder weighing half a ton or more broke loose from its resting place and thundered across my path a few yards ahead of me.

By the time that I had crossed the glacier and reached a low pass above it, a layer of clouds concealed the sky and snowflakes were whirled about by a gusty wind. A half-mile or so to the west, across another glacier, loomed the sheer eastern face of Silvertop Mt. Above a notch to the left, however, the rock appeared to be sufficiently broken to render it scalable. I therefore proceeded across the glacier and clambered up to the col. As I made my way up steep couloirs and broken rock faces, I encountered rather arduous but only moderately difficult climbing. Upon arriving on the summit, I walked northward to its highest point—apparently the first time that human foot had ever trodden upon it. The view was a magnificent one extending over numerous high mountain ranges and broad valleys to a far away horizon.

As a rather strong wind was blowing, I sought shelter from it by descending to a shelf above the eastern precipice. Soon the clouds grew heavier and presently an electric storm was in progress. Feeling that a high pinnacle directly above me might attract a thunderbolt, I scrambled back to the summit. Instantly my head seemed to crackle and I detected the odor of ozone. Breaking into a run, I hurried down the slope of the summit, but with no apparent diminu-

tion of the embarrassing phenomena. Gendarmes projecting above the general level of the rocks, hummed loudly. Thinking that I was making an animated lightning rod of myself by remaining in an upright position, I threw myself prone on the rocks, whereupon the crackling sound ceased and the odor of ozone seemed to disappear. The storm proving a transient one, I was soon exploring the summit, but observing what appeared to be a second squall approaching. I hastened down the south wall of the mountain to the notch.

Upon my arrival there, I decided to attempt the descent of a couloir to the west of it. Although there was some possibility of being unable to reach the foot of the chimney, the distance to camp would be so much shorter that it seemed worth while to run the risk. Somewhat to my surprise I arrived at the base without encountering any real difficulty. I then hastened to the meadow visited on the preceding climb. After the strenuous and somewhat thrilling ascent the grass, lovely flowers and limpid brook scintillating in the sunshine, together with a blue sky, following the vanished storms, were extremely welcome. After a pause of perhaps a half-hour, I continued up the gorge and on to camp.

### Granite Peak

A most interesting and unique trip is one from Goose Lake to Granite Peak. The route lies across the Grasshopper Glacier, around the western shoulder of Mt. Wilse and eastward for eight or ten miles over an area of rough, broken terrain a few miles in width and almost entirely above timberline. It is a strip of alpine desolation, yet possesses a certain fascination in its rugged and almost vegetationless basins and ridges and in its azure lakes and tarns. At long intervals, one comes upon a stunted albicaulis pine or a dwarfed willow. Only a few herbs grow upon the rocky and almost soilless ravines and acclivities.

After trudging across a number of miles of such topography, one clambers over a pass, swings across an upper basin, crosses a small glacier to a second pass, descends a glacier—keeping to the right—to Avalanche Lake at the southeastern base of Granite Peak. A jade-colored lake, hemmed in on three sides by mountains crowding to its shores, steeply-pitching glaciers overhanging two sides, and an almost impassable valley below it, form a scene of wild and isolated grandeur. A small, matted thicket of alpine conifers on its northern margin is the only timber found in the upper basin.

The ascent of Granite Peak is one of considerable difficulty and has been accomplished but twice.[1] After picking one's way up rocky acclivities for some 1,500 feet, the climber comes suddenly upon a long line of jagged pinnacles gradually rising to the summit perhaps a half-mile distant. To the right they drop away to a precipitous glacier, to the left to almost vertical cliffs furrowed by couloirs. The climb is essentially one of traversing shelves to the south of the arête, varied by occasional scrambles up steep chutes and rock faces. The summit, 12,850 feet above sea-level and but a few yards in diameter, is the highest point on a jagged knife-edge which continues some distance farther to the west. The view is similar to those obtained from other peaks farther west, but owing to the greater elevation of Granite Peak, is both more imposing and more comprehensive.

Second to the Tetons, the Beartooth Mountains are the most interesting of those in the environs of Yellowstone Park. The mountaineer will find them worthy of a visit, both for scenic impressiveness and for opportunities to make interesting and, in several cases, rather difficult climbs.

## Pilot and Index Peaks

A few miles southeast of Cook City in the extreme northwest corner of Wyoming adjacent to Yellowstone Park and accessible from it by motor, stand two interesting and striking uplifts—Pilot and Index Peaks. Visible far over the prairies of Montana, their isolated and spectacular forms served as landmarks for the early pioneers of the state—Index Peak attaining an elevation of 11,741 feet and its neighbor only slightly less. From different directions they present a variety of castellated and spiry shapes.

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[1] The first ascent of Granite Peak, the highest summit in Montana, was made late in August 1923 by a party from the U. S. Forestry Service, consisting of R. T. Ferguson, Supervisor of the Beartooth Forest, J. C. Witham and Elders Koch. From East Rosebud Inn, horses took them to West Rosebud Plateau whence a camp was packed to Avalanche Lake and the climb carried out the next day by way of the southeast arête. Mr. Clyde's ascent was the second, made in August 1926 with Ernest Vogel. The region of the Beartooth Mts. was explored for many years by Mr. Fred Inabnit of Billings, a devoted nature enthusiast. He prepared an elaborate relief model of Yellowstone Park and its environs and was largely responsible for the conquest of Granite Peak by the Forestry Service.—Ed. *A. A. J.*

GRANITE PEAK (12,850 FT.) N. E. WALL AND GRANITE GLACIER

INDEX PEAK (11,740 FT.) FROM THE EAST

*Photo, © A. B., Baumgartner Studio*
GRANITE PEAK (12,850 FT.) N. E. WALL AND GRANITE GLACIER

*Photo, Norman Clyde*
INDEN PEAK (11,730 FT.) FROM THE EAST

*Photo. G. H. Harvey*
THE TROUGH, LONGS PEAK

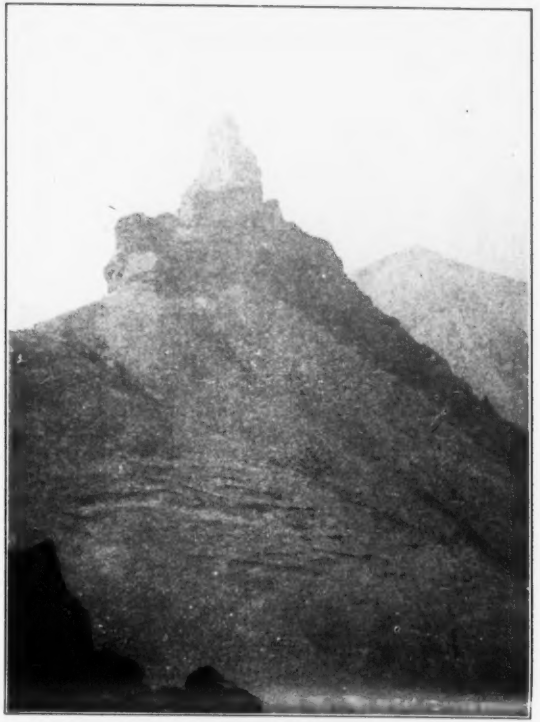

*Photo. Norman Clyde*
PILOT PEAK

They are of volcanic origin, being remnants of a thick formation which has been eroded away, leaving only the two lofty spires projecting for hundreds of feet above a rather even ridge. They consist of sheer-faced basaltic rock alternating with an andesitic type of a more or less crumbling, and sometimes conglomerate, character.

So far as I am aware, neither has been ascended. Various rumors are current in the locality relative to futile attempts and even of fatalities among those who made them. How much veracity there is in them I do not know, but probably none, in either case.

I once undertook a hasty reconnaisance of both peaks, but made no serious endeavor to climb either. The general impression that I received was that the basaltic walls were in most cases too sheer to be scalable and the andesitic ones too friable to be climbed, without incurring unjustifiable hazard.

*Photo. Norman Clyde* PILOT PEAK

*Photo. G. H. Harvey* THE TROUGH, LONGS PEAK

## Seventy Years of Climbing On Longs Peak

JOHN L. J. HART

OVER a hundred years ago Longs Peak (14,255 ft.) was a landmark and nothing more. To the French trappers it was Les Deux Oreilles; to the Indians it was Nesotaieux, or the Two Guides. It stood out so high above the surrounding country that Major Long, approaching the mountains in 1820, confused it with the "Highest Peak" seen by Lieutenant Pike in 1806, the present Pike's Peak, first discovered and best known of Colorado's peaks. After the whites occupied the plains and the Indians were driven westward into the mountains, Longs Peak became well known to them. They climbed to its summit in order to trap eagles, desiring their feathers for purposes of adornment.

When whites finally reached the base of the peak, the idea of climbing it, of course, arose, but the nearest settlement being distant about two days' ride, attempts were very few. It was not until the year after the Weisshorn and Lyskamm were first climbed that the eastern summit of Longs Peak, less than a thousand feet lower than these Swiss peaks, was first ascended by white men. The direct traverse from this eastern summit (now named Meeker after the Indian agent murdered in the Ute War of 1879), to the highest summit is extremely difficult and has probably been made only once in each direction. At that time, of course, the traverse seemed impossible.

The peak was a puzzle; three sides were explored and they all seemed impossible. As a matter of fact today the summit is attained by a route which circles the peak, gaining altitude on each side and avoiding the precipitous stretches. The fourth face, the southeast face, although precipitous, is possible to able-bodied men, and was the route by which the first ascent was made. This has always been the least accessible side. In fact the party first ascending it attained its base only after carrying their equipment over several peaks almost as high as Longs Peak. And thus on August 23, 1868, three years after the first ascent of the Swiss Matterhorn, Longs Peak was conquered by Major Powell, who also made by boat the first descent of the Grand Canyon of the Colorado.

Within five years, the ascent by this southeast "Homestretch" route became a regular occurrence. Climbers of this period were F. H.

*Courtesy C. M. C.* NORTH EAST FACE OF LONGS PEAK FROM AN AEROPLANE

Showing Alexander's route. Central vertical portion is the Notch Chimney. Mills couloir is diagonal strip of snow to the left. Total height of main cliff almost 2,000 ft.

Chapin of the Appalachian Mountain Club; Albert Bierstadt, the painter; Anna Dickinson, the author; F. V. Hayden, the geologist, and Isabella Bird, the travel writer. Among the early guides to the peak were the Reverend E. J. Lamb; his son Carlyle Lamb; and Rocky Mountain Jim of Muggins Gulch. The Reverend Lamb, clad in a long overcoat, even descended the upper half of the northeast face, which is the most precipitous, following a ledge, now named "Broadway", until he was off the mountain. Then being unable to reascend the peak, he was forced to adopt the only obvious route, an ice couloir some two thousand feet in height, sloping at about forty-five degrees. While attempting to descend along the edge of this, he slipped on some ice and only escaped death by catching on a projecting rock. He finally got to the base of the mountain by cutting steps in the ice with a pocket knife. The couloir became known as the Lamb's Slide by people doubting his story. In September this couloir has some resemblance to the main couloir on the Aiguille Verte, although it is much easier earlier in the year.

In the beginning his son, Carlyle Lamb, was the chief guide. In his first three years (1874-1877) he made fifty-five ascents of the peak, starting from his home five thousand feet below the summit. This was before climbing was done on a wholesale scale in the Alps, the three years occurring in the interval between the first ascent of the Blaitière, and that of the Meije. Almost a hundred people went on the peak annually at this time. Enos Mills started guiding twenty years after the first ascent. In the next seventeen years he made 257 ascents of Longs Peak, as well as ascents in Europe and British Columbia.

The number of persons reaching the top annually has constantly increased. Twenty-five years ago it was between seventy-five and eighty. Fifteen years ago the number had become 280, the next year 623; eight years ago 1285, and five years ago about 1500, from forty-two states of United States and foreign countries. And thus the peak has progressed in one hundred and twenty years from trappers to trippers.

The guides appear always to have charged five dollars a head. The Reverend Lamb said, "If they would not pay for spiritual guidance, I compelled them to divide for material elevation." The guides have preferred taking large parties up the regular trail rather than attempting real climbing elsewhere. Although this trail is extremely varied, both in terrain traversed and in view, it is not diffi-

cult. It has been ascended by a boy of eight, a girl of twelve, a woman of seventy, and a man of seventy-four. On the other hand, it has had its accidents,—a woman has died of exhaustion, a man has accidentally killed himself with a revolver, and another has been killed by lightning, on it.

Longs Peak offers extremely good rock-climbing, but until very recently no advantage seems to have been taken of this fact. A very good club, named the Rocky Mountain Climbers' Club, had a brief existence in Colorado some twenty years before the present Colorado Mountain Club was organized. It was this club which financed the ascent of the Grand Teton by the Spalding-Owen party (the second or first ascent). About the year in which the Requin was conquered, a party of this club made the first ascent of the southwest face of Longs. The route is quick, interesting, impressive and safe, presenting no more difficulties than the north route on the Aiguille de l'M, and yet no guide appears ever to have made this ascent except Enos Mills, three years later. Mills seems to have been the only guide to display any initiative during the period of fifty years between the first descent of the northeast face and the first ascent thereof. He repeated Lamb's descent of the northeast face thirty-two years later, and made the first ascent of the north face, both by himself.

The search for new routes began about eight years ago with the first ascent of the northeast face by Professor J. W. Alexander of Princeton, alone, and his second two days later. This ascent was made entirely on the exposed face of Longs Peak, without using Lamb's Slide, now called Mills Glacier, to avoid the lower half of the face. Professor Alexander subsequently made the first descent of the south ridge (not yet ascended), a new route on the southwest face, and (with Dudley Smith) the first ascent of the northwest ridge.

The enterprise and ability of Professor Alexander in opening up new routes on the mountain has greatly stimulated climbing interest in it, for he had made ascents in the Alps, one being a summit of the Aiguilles du Diable in the Mont Blanc region.

Two other climbers with European experience, Colonel Bruns and William F. Ervin, have found the two most difficult routes on the peak. One leads up the northeast face, directly under the summit and as straight up as is possible. It lies far to the left of Alexander's line, as one views the great precipice. The other route is up the northwest face.

Even before Professor Alexander's ascent one route had been added to the "Homestretch" or regular route. This new way is situated on the north, where the northeast and northwest faces join. About three lone ascents were made here prior to Alexander's arrival, one by Roger W. Toll. He later became Superintendent of Rocky Mountain National Park, in which the peak lies, and had placed here in 1925 an iron cable to aid climbers. Since then Longs Peak has been frequently traversed, using this north route for either the ascent or descent.

The northeast face has become a well known climb, at least twenty-three people having accomplished it to date. A guide named Caldwell has led a party using this route for ascent and descent on the same day, and has also guided a woman on the descent of this route using the *rappel*. Another guide, Moomaw, has made, I believe, two ascents. This route has resulted in four fatal accidents, which shows that it must not be used by inexperienced climbers. I find it hard to compare with any Alpine courses. I have always considered it to be about equal to the Grand Dru by the usual route, which, incidentally, was not climbed until seven years after Lamb's descent of the northeast face.

The rock of Longs Peak is a fine, firm granite, with good holds. It is an ideal mountain for trying new ways. The last one thousand feet, precipitous on all sides, has eight routes at present and I believe that more can be worked out by expert climbers. On the adjoining mountains also many fine new routes of Alpine difficulty are to be found. This is true of Meeker and Pagoda, and along the whole Continental Divide from Chief's Head to Flat Top Pass, between Estes Park and Grand Lake, a group which has several steep, long ice couloirs. The accommodations for climbers on Longs Peak are splendid. There are three hotels at about 9,000 feet, and a cabin at the Boulderfield at about 10,000 feet, so alpinists finding themselves near Colorado may combine Alpine comfort with the pleasure of exploring routes of Alpine difficulty on virgin rock and ice.

## Climbing the North Face of the North Palisade

NORMAN CLYDE

THERE is no more spectacular peak in the Sierra Nevada, none more alluring to the mountaineer than the North Palisade. It rises to an elevation of 14,254 feet above sea-level among other peaks almost as high and almost as rugged. Its ascent was probably more of a problem than that of any other peak of the Sierra. Only after considerable reconnaissance and repeated efforts was a route found up its south face by Joseph Le Conte, junior. Its northern one was long regarded impossible, but eventually a way was found up a steep snow chute, over the broken wall of a cliff and along a ragged knife-edge to the summit. Often I had scanned this face of the mountain for a more direct route. Only one seemed possible, and that was dubious. It led up a narrow, snow-filled chute for several hundred feet, thence up the face of the mountain for a few hundred more and finally over broken cliffs to the summit. But there was a question both as to the feasibility of the couloir and of the face of the mountain above it: the first on account of the bergschrund below it and the steepness of the ice in the couloir; the second because of a face apparently too sheer to afford sufficient holds to permit of its ascent. Even repeated study with binoculars failed to convince me of the feasibility of either of these portions.

However, one day early in July, 1929, I decided to make an attempt. Leaving camp on the Big Pine Lakes, I proceeded across a grassy basin and over several miles of rocky acclivities above to the border of the Palisade Glacier, which, a mile in width and several in length, sweeps up to the base of the North Palisade and to that of Mt. Sill to the left and Mt. Winchell to the right.

The morning was extremely beautiful. The craggy peaks stood silhouetted against a stainless blue sky; blue shadows cast by their turreted summits rested on the snowy expanse of the glacier. Almost directly opposite was the steep chute up which I had hoped to make my way. Trudging steadily across the snow, I presently came to the bergschrund at its base. Fortunately a bridge of snow and ice lay across it. In one leap I reached its center and in another landed on the upper lip of the crevasse. Some step-cutting carried me across a strip of glare ice to a steep snow slope up which I continued for

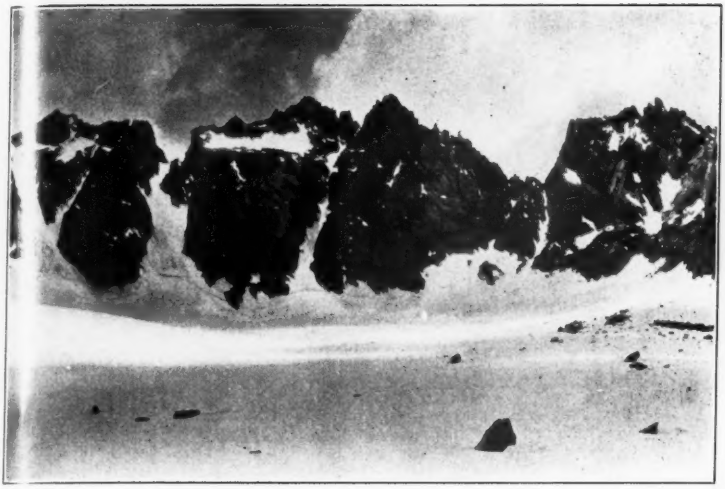

*Photo. N. Clyde*

NORTH FACE OF NORTH PALISADE

Route lies up central snow couloir and its enclosing walls direct to summit.

*Photo. N. Clyde*

NORTH PALISADE FROM MT. SILL

Showing side ascended.

perhaps two hundred feet by "kicking in" my toes. For several hundred more I forced my way along the icy margin of the couloir and along the rock wall above it.

Eventually discovering a way up the dubious portion of the face to my right, I hoisted myself up to it. Greatly to my surprise, I found it traversed by rather numerous shelves up which I zigzagged without any great difficulty. After several hundred feet of such scrambling, I found myself forced into the icy tongue of the couloir. Cutting my way across it, I began to lift myself up the steep, but broken walls above it. There I encountered interesting and rather difficult climbing, but by veering to one side or another was able to go around every insurmountable obstacle which confronted me. But as I advanced, progress became more difficult, the way leading up short, steep chimneys filled with loose snow underlain by smooth ice. To go forward I was forced to scoop a trench in the snow with my ice-ax and cut steps in the ice beneath it. In this way I pressed forward until I was immediately beneath the summit arête and only a few rods from the top of the mountain. There, however, I was confronted by a new obstacle in the form of an overhanging rock. After trying in vain to hoist myself over it by the scanty handholds available, I threw a rope over and by the latter's assistance succeeded in hauling myself up. A few minutes scramble then brought me to the summit.

After throwing down ice-ax and rucksack, I began to survey the marvelous panorama commanded by the North Palisade, extending from Mt. Whitney in the south to the Yosemite in the north—an amazing array of lofty, snow-clad peaks. The sky was almost cloudless and warm sunshine fell on my lofty perch. Several rosy finches fluttered about, uttering the cheery notes loved by all mountaineers. Extending to the east and swinging to the northwest was the crescent of the Palisades on whose highest and finest peak I was then sitting—Mt. Sill and the Middle Palisade to the east; Mt. Winchell and Agassiz Needle to the northwest. Beyond the latter were the rugged peaks of the Evolution Mountains, and beyond them and to the right the isolated pyramid of Mt. Humphreys. To the south I could descry almost all the main peaks of the Sierra—notably Mts. Williamson, Whitney and the Kaweahs. To the east I looked down on the great trough of Owens Valley and across to the White Mountains; to the west down the declining, canyon-furrowed slopes of the Sierra to the San Joaquin Valley.

After an hour's sojourn on the summit I began the descent. Wishing to avoid the icy chimneys just below the top, I followed the summit-crest for a few hundred yards and then dropped from it to a snowfield on a moderately steep incline—a remnant of an ancient landscape comparatively untouched by the forces of erosion. From it I swung northwesterly toward my route of the morning. By going too low I was obliged to do some rather embarrassing traversing along shelves that dropped away to sheer cliffs, but eventually I reached the head of the couloir, crossed it to the shelves running down the steep face and then descended them to the lower portion of the chute. A considerable stream of water flowed here, sometimes underneath the ice, sometimes along its margin. By dint of a good deal of hacking with my ice-ax, I cut my way down over the ice and sometimes in the stream, being treated, meanwhile, to a generous wetting.

Presently, however, I reached the foot of the couloir, leaped across the bergschrund and glissaded down the steep upper slope of the glacier. Afternoon shadows fell across it from the North Palisade, but the rays of the declining sun shone brightly on the craggy face of Mt. Sill and an unnamed sharp peak to the north of it. I sped down over the glacier and over the moraine; down the rocky slope to the green valley and thence over the rocks to my camp by the Big Pine Lakes.

# The Dam at Moraine Lake

WALTER D. WILCOX

IN the first number of the *American Alpine Journal,* in an interesting article entitled "Climbs from the Fay Hut", Mr. Joel E. Fisher refers to an unusual condition of a cliff above the Fay Glacier where there are indications of an impending rock fall. He continues to say, "Before long, it will no doubt come away altogether and seek the valley, with a result similar to the so-called 'moraine' of Moraine Lake."

It is evident from this that Mr. Fisher does not believe in a glacial origin for the Moraine Lake dam and prefers to consider it a rock slide. With this opinion there are many people who not only agree but who have so expressed themselves from time to time, ever since the lake was named. The great majority of geologists, however, conclude that this formation is a true moraine and cannot possibly be a rock slide.

During a number of years previous to 1899, the writer made an extensive study of the glacial phenomena of the more accessible parts of the Canadian Rockies and published the results under the title "A Certain Type of Lake Formation in the Canadian Rocky Mountains," in the *Journal of Geology,* Vol. vii, 1899. In the same year, also, he gave the name to Moraine Lake, in the belief that the rock pile that dams the lake was a true moraine. It seems fitting therefore that he should restate at the present time the arguments that support this conclusion. This he will endeavor to do as clearly as possible and at the same time present fairly all the facts that point to a contrary interpretation.

First let us briefly examine the evidences of glacial action in the Valley of the Ten Peaks. The upper part of the valley is partly occupied by the Wenkchemna Glacier, which is of the piedmont type, formed by the amalgamation of several smaller ice streams descending from the mountains on the southeast side of the valley. Its heavy covering of rock debris retards melting and the movement of the ice is almost negligible. The glacier is about three miles wide and half a mile long. The motion of the ice, such as it is, must be described as more or less transversely across the valley rather than in the direction

of its axis. In some places there are evidences of a recent advance on the forest, where trees are partially buried and bent over by newly formed moraine. In addition to these unusual features, the stream that comes from this glacier is of crystal clearness, a circumstance almost unique in these mountains.

This glacier is, of course, a remnant of the much greater ice stream that filled the valley in the Ice Age, which terminated about nine or ten thousand years ago. It left lateral and ground moraine formations throughout the lower parts of the valley, and these have undergone practically no changes since, the forests having protected them from undue erosion.

The most conspicuous change that has taken place since the Ice Age is the formation of the immense talus slopes on the east side of the valley. They began to build up immediately after the retreat of the Pleistocene glaciers and have continued to the present with unabated activity, so much so, in fact, that it is dangerous to approach these slopes without using great care and vigilance against the frequently falling stones.

The only other formation of comparatively recent date is the pile of debris that partially, if not entirely, dams Moraine Lake. It is taken for granted that there are only two theories for its origin—a rock slide or a moraine. Moraines are so clearly understood that there is no need to describe them here beyond stating that they are usually sharp-ridged formations, more or less parallel to the sides and ends of glaciers. They often assume the form of a series of nearly parallel ridges owing to successive advances and retreats of the ice. They are composed of clay, gravel, cobbles, and boulders of large size, almost invariably arranged without any semblance of stratification. Many of the larger stones are striated and show evidences of glacial action.

Rock slides appear to be far less clearly understood. Catastrophic rock slides in which immense masses of material fall at one time are comparatively rare. The usual condition is a series of intermittent rock falls of a few stones, which, descending through many centuries, as a result of rain, frost and changes of temperature, build up piles of debris that rest against the sides of the mountains. These are known as talus slopes. They have a certain "angle of repose" which is the balance between gravity and friction, and which is always maintained in each and every part of a talus slope with very small variation. Moreover whether the entire mass of a talus slope falls at one time or

little by little through many centuries, the resulting slides will have the same angle of repose and the same profile under both conditions.

But a fact of supreme importance in this problem is that rock slides never go up hill and hence they do not and cannot make ridges or piles of debris higher than their course of descent. The motion of rock slides is always downward and outward, in a fan-like form, from their sources of origin. This statement, while opposed to popular conception, is based on both theory and fact and in the course of nearly forty years observation in the Canadian Rockies, the writer has never discovered an authentic rock slide that proved the contrary.

In other words rock slides, large or small, must not be considered as resembling in any way, or acting like, a liquid mass or even a semi-liquid mass, such as melting snow, which might ascend a slope for a short distance. Liquid masses are controlled by gravity, but rock slides are controlled principally by friction and are essentially inert and sluggish in their movements. The same laws controlled the disposition of the debris when the Campanile fell at Venice, as control the constantly moving slide on the west side of Cathedral Mountain or as controlled the overwhelming catastrophe in the upper Simpson Valley where in a few minutes a mass of rock, four miles long and hundreds of feet thick, obliterated a river and changed a landscape.

With these few ideas in mind, let us now carry our studies to Moraine Lake. Here we find a pile of debris about four hundred feet long, arranged in two parallel ridges running transversely across the valley. This pile rises sharply to about seventy feet above the surrounding country and probably one hundred feet above the lake bottom. It is separated by a more or less level space of about four hundred feet from either side of the valley.

Let us assume that this is indeed a true rock slide that has fallen from the mountains on the southeast. The time of this fall might have been as long ago as immediately after the ice retreat, or as recently as three or four hundred years ago, as shown by the maximum age of the trees growing on it and rock splitting. If we select the earlier date, we must remember that then there were no talus slopes, all ground moraine and other debris having been swept out of the valley or smoothed off by the glaciers. The southeast side of the valley was like part of a canyon with a high, precipitous cliff, rising out of a nearly level, valley floor. This cliff was about ten or twelve hundred feet from the present location of the rock pile. In order to picture the rock fall we must imagine it to have descended the

precipice, and, upon reaching the valley, instead of resting there as would be expected, to have moved across the plain for about a fifth of a mile and then piled itself up neatly seventy-five or a hundred feet high without leaving behind a connecting ridge, or even a single rock to give evidence of whence it came.

On the other hand, if we assume that the slide is of quite recent date, when the talus slopes were almost as fully developed as at present. then the slide would have had the advantage of riding in part, over the talus slopes, and thus arriving several hundred feet nearer to its goal. However, we should again expect a long connecting ridge of material similar to the formation itself, to reach out from the talus slope and clearly indicate where this slide came from. No such ridge exists and where one should be expected there is a gap seventy feet deep and four or five hundred feet wide.

The reader is at liberty to premise any intermediate date for the occurrence of this rock slide with varying difficulties, but they are in all cases insurmountable. In other words this rock mass if a slide, violates all the known laws of such formations: in location, in profile and in origin, no less than in the arrangement of the ridge across the valley in the direction of motion of the theoretical slide. It seems fair to say, therefore, that the theory of a rock slide for this formation is untenable.

There is only one other assumption for the origin of this formation, namely, that it is a true moraine. From our knowledge of moraines, we see at once that the formation fulfills every apparent condition of a moraine, in its location in the valley, in profile, and in the direction in which its moraine-like ridges run. It is exactly where a moraine should be expected to be found in relation to the valley and its surroundings. Having satisfied ourselves of this, let us seek final and conclusive proof in the internal structure of the formation. Now, we are astounded to find that there is here no evidence of glacial origin, such as striated stones, gravel and clay. On the contrary the pile is composed of sharp-edged rocks, quartzites and shales of all sizes up to immense blocks weighing many tons, mixed with earth and sand. Actually we have here a pile of debris that could not possibly have arrived at its present location as a rock slide, yet with the internal structure of a rock slide and the outward form and position of a moraine. Is there any way to reconcile these divergent facts?

Fortunately we have a most probable cause for this unusual formation. There are evidences all through the Canadian Rockies of considerable earthquake activity at periods that are comparatively recent. One of these earthquakes may have occurred at a time when the Wenkchemna Glacier still extended as far as the present location of Moraine Lake and may have dislodged part of a rock wall at an unknown distance up the valley. The resulting debris, falling on the glacier, may have been transported and deposited intact as a moraine. As the mass of material was very thick it would have protected the underlying ice from melting, and, riding on the surface of the glacier would have arrived without the usual evidences of glacial erosion.

In 1904 Dr. William H. Sherzer made an investigation and later a report on the Victoria and Wenkchemna Glaciers in Alberta, and the Yoho, Asulkan and Illecillewaet Glaciers in British Columbia for the Smithsonian Institution. On pages 69 and 70 of this most interesting monograph Dr. Sherzer writes as follows: "Moraine Lake. This lake has had a different history from that of Lake Louise in that it is apparently not a rock basin and so attains no great depth. It is, however, like Lake Louise in that it has a morainic dam across its foot, although in the case of Moraine Lake the dam is of a different type. This consists of a sharply defined heap of rock debris about four hundred feet long, placed at right angles to the main axis of the valley. The ridge increases in height rather gradually toward the west and attains a height of about 70 feet, ending abruptly, as steeply as the debris will stand and with no trace of any continuance across the valley. This is so unusual a feature for a terminal moraine that many are disposed to consider the mass as a rock slide from the adjoining mountain face. . . . The writer is disposed to accept the view of Wilcox, who gave the name to the lake, that we have here a moraine. It is, however, not of the bear-den type found farther up the valley, but very much older than the most ancient of the two. Its general lack of vegetation may be due to the scarcity of suitable soil, although it does support a sparse growth of timber. The unusual features of the mass, considered as a moraine will be understood when the unusual nature of the glacier that formed it is considered. This represents the position of the front of the easternmost ice stream, of the ancient piedmont Wenkchemna during a prolonged period of the halt."

In view of the apparent facts above mentioned and the opinion of so eminent a geologist as Dr. Scherzer it seems fair to place the burden of proof on those who hold the rock slide theory and ask them to show when and how this formation arrived at such a remarkable position as it now occupies and also to explain why this moraine-like ridge should have a profile unlike any other rock slide, so far as known, in the mountains.

## The Fatality On Kanchenjunga

W. S. LADD

"ONE day towards the end of winter, there walked into my office a tall, clear-eyed, square-jawed, young man. He was from Virginia. He had lived in New York City for years, working in one of those great down-town beehives, but rarely able to escape from Manhattan Island to enjoy the beauties of our environs. Five years ago he had conceived the desire to climb Kanchenjunga. He kept this desire and read and studied and planned the trip. Few details escaped his attention—food, clothing, footwear, mountaineering equipment had all been carefully purchased. He sailed from New York alone and expects to reach the summit of Kangchenjunga and be back by August (1929). He has never been on snow or ice other than that of our streets. Nor has he ever been up a hill of more than three thousand feet. What nicer experiment in the problem: can book-knowledge suffice where actual experience is usually held to be so necessary? Will he get there? I shall not forget the eye nor the jaw nor the simple faith in himself. He has my wish for success."

At about the time of the publication of the foregoing note,[1] word was received from India that Mr. Farmer had not returned. Of course we could not regard this outcome as a complete answer to the hypothetical question raised in our first paragraph. It is but one more bit of evidence to add to that which accumulates year by year in every line of endeavor—that "experience is the best teacher".

When he arrived in India, Mr. Farmer proceeded to Darjeeling and there met Mr. G. H. Johnson, a climber of experience in the Himalayas. He and others helped Farmer to secure excellent porters —several of them being well known men of experience and veterans of Mt. Everest expeditions.

The story of what befell Mr. Farmer is best told by the testimony of the porters before the Indian Police, which follows—

"Statement of Lobsang, son of Dawa Tibetan of Patual-Sho, Lhasa; age 33, of Bhuti Bosti. Mr. Wood-Johnson, Assistant Manager of Geille T. E. went to Giuchela last year in October and I went with him as his headman. There were 20 coolies. I was with

[1] *Mountain Magazine*, Vol. VII, No. 4, July, 1829.

General Bruce of the Mount Everest Expedition on two occasions, and it was for this reason Mr. Wood-Johnson took me with him. He had a successful trip. In April on a Wednesday I went to Geille T. E. on the call of Mr. Wood-Johnson who told me that Mr. Farmer was going to Jongri for one month and six days, i. e.: 9 days each way to Jongri and back and he would halt 18 days at Jongri and take photos. He would be going up to Kang-La. On my question, I was told that Mr. Farmer was not going to do mountain climbing and, being such a light job, he arranged to give Rs. 1-4-0 per day for me, and to Sonam Topgay and Nima Tenduk and seven other coolies, anna 12 per day. He also promised that rations would be provided from Yok-Sun onwards.

"On 6th May, 1929, we started from Jongri at 7 A. M. taking with us five days rations for six of us, leaving our reserve ration at Jongri with a yak-herd. We halted at Aluk-thang. On 7th May, 1929, we arrived at Chematang at 4 P. M. Mr. Farmer alone climbed Guichela. He told us to stay at Camp. At nightfall I sent Nima Tenduk with a lantern and Mr. Farmer returned at about 7:30 P. M. There was a little snow on the way to Guichela. Mr. Farmer told us that he was returning after an hour and therefore we did not go.

"On 8th May, 1929, at 6 A. M., Nima Tenduk, Sonam Topgay and myself accompanied Mr. Farmer. We went about half way to Guichela when he said he had been on the top of Guichela the previous evening, and turned towards Kanchen Junga. We walked in that direction up to 11 A. M. When we reached the Lap-tse (cairn) heavy cloud intervened and we could not see the Kanchen Junga. We halted there for one hour but it did not clear so we returned to Chematang and halted the night there. On 9th May, 1929, at 6 A. M., we got ready to start, when he suddenly said that he must go towards Kanchen Junga, the same direction where we went the previous afternoon, and would return in half an hour. We waited there and he returned at 10 A. M.—that is four hours after. He left Chematong at 10 A. M., and came to Jongri at 5:30 P. M.

"On 10th May, 1929, on my suggestion, Mr. Farmer sent Nima Tenduk and Dam-du to purchase flour, vegetables, eggs, etc., at Yok-Sum and Pemingchi. Mr. Farmer, myself, Sonam Topgay and Sonam Chompe halted at Jongri. On 11th May, 1929, Mr. Farmer told me to take 5 days rations and four of us left for Kang

La where he said he wanted to see the road. We halted that night at Tre Kyaplak cave near Chu-rang Chu. On 12th May, 1929, we went further towards Kang La and halted at Cho-kar-Pang. On 13th May, 1929, at 6 A. M., Mr. Farmer, myself and Sonam Topgay went towards Kang La. We crossed Kang La and went about one-fourth mile. There was heavy snow on the Pass. Q. I did not know that Kang La was the boundary line of Nepal. We returned that night at Tre-Kyap-Lak.

"On 14th May, 1929, we came to Jongri, where we halted on 15th May 1929. That day Mr. Farmer went alone towards Ke-pur mountains. I objected to his going alone but he refused to take any one of us. That night Nima Tenduk and Dam-du returned from Pemiongchi with one mound flour, potatoes, eggs, beans, onions and a seer of butter. On 16th May, 1929, morning Mr. Farmer instructed me to take 14 days rations and we started for Kang-La at 10 A. M. We halted that night at Tre-Kyamla. On 17th May, 1929, at Chu-Kar-pany. On 18th May, 1929, we halted near Tse-ram on a grassy place. It was a bad and cloudy day. On 20th May, 1929, we came to a village. I thought we were in Nepal and asked Mr. Farmer whether he got a pass to enter Nepal. He replied "I know", "I know". We then returned back about one-fourth mile and turned towards Kanchen Junga and halted on a hill.

"On 21st May, 1929, we went down into a valley and here we made our Base Camp. There were small or dwarf rhododendron trees available for fire wood. On 22nd May, 1929, Mr. Farmer, myself, Sonam Topgay and Nima Tenduk went up for about one mile and on account of snowfall we returned to Base Camp. On 23rd May, 1929, Mr. Farmer ordered me to take 4 days rations and about 10 A. M. we started i. e. Mr. Farmer, myself, Nima Tenduk and Sonam Topgay. We halted at the glacier till 2 P. M. then we crossed the stream on the left and halted there for the night. We were on the lowest portion of the glacier. Mr. Farmer called this No. 1 camp.

"On 24th May, 1929, we were actually on glacier. We saw avalanche falling near our camp. We left at about 7 A. M. and came to our camp at 5 P. M. and halted there. Mr. Farmer called this as No. 2 camp. On 25th May, 1929, he started at about 7 A. M. and reached at the foot of Kanchen Junga mountain at about 4:30 P. M. We made our camp on glacier. It was a difficult place and we made the camping place. We halted there. It was a cold night.

In a few minutes our hot tea got frozen. We walked very slowly from Camp No. 1 to this camp which Mr. Farmer called Camp No. 3. That night he told us to prepare to leave the camp at 6 A. M. the next morning.

"On 26th May, 1929, at 6 A. M. we all started. Mr. Farmer took coffee, some dry biscuits and ham. He kept no food of any kind in his pockets. He took a small camera, a pair of field glasses, ice axe and 2 films. He wore 3 shirts, 2 coats, 3 pairs of drawers, 3 pairs of socks. The nails of his boots having worn out he used a pair of crampons. He took no rope. We walked up together on the mountains but very slowly as we were getting difficulty in breathing. It was 9 A. M. then. I suggested to Mr. Farmer that as the sun was up and the snow melting, we may get trouble if we go further and suggested him to return to our camp. Mr. Farmer insisted that we must climb the mountain up to 12 noon. We went on. Then we came to a difficult place on snow and ice, sometime down and sometime up. It was like an ice corridor. Then came to a rock and when climbing I slipped and fell down about 6 or 7 feet and injured my back. Mr. Farmer told us to wait here for him. He would return at 12 noon after taking some photographs. He gave his Cine Camera to Sonam Topgay to let the spring go when he climbs up. As he started climbing up the mountain Sonam Topgay tried to operate it. We saw him going up to 5 P. M. As he walked he looked at us several times; and we all called him back but he paid no heed. At 5 P. M. he set down on the snow. Just then heavy cloud set in and intervened. We waited on the spot till 6 P. M. We thought that he would be returning and we returned to camp No. 3 and cooked food and waited for him. He did not return. We used his torch light just to show him the camp. On 27th May, 1929, at about 7 A. M. we got on the top of an ice hillock and we saw all the way that Mr. Farmer went up. We saw Mr. Farmer climbing up on the steep snow. This time he was long way up. It was small figure. He was climbing up. The peak of Kanchen Junga was on his left hand side.* He got on the top of a mountain when the sun struck the ridge. He crossed that mountain and we never saw him again. Heavy cloud intervened. There were other mountains behind the ridge that he crossed. We waited for the Sahib at No. 3 camp.

*The description given shows that he went up towards the Talung Saddle (22,130 ft.). The party had been working on the YALUNG Glacier.—Ed. *A. A. J.*

He did not return. We had no food—all exhausted. There were some dry biscuits of the Sahib which we eat. About 300 feet from our camp we found an old camp for 2 tents. (Probably the camp of Raebum and Crawford who are known to have gone up to Yalung in September, 1920). We thought some Sahibs came here before. There were two empty tins of kerosine oil and also a broken clay pot. There were two heaps of stones (Cairns) which we thought were graves.

"On 29th May, 1929, we waited for the Sahib. As he did not return we left the camp at about 9 A. M. and came to No. 2 camp where we left some food on the up journey. We reached there at about 5 P. M. For want of food we nearly lost our lives. I thought as the Sahib did not return for 3 days, he must have met his death.

"On 29th May, 1929, we came to the Base Camp where we met Sonam Chompe and Dam-du and halted there. That night our food was exhausted as we took food for only 14 days.

"On 30th May, 1929, Sonam Chompe went to a "Gote" cowherd and there he exchanged his "Chupa" Tibetan coat for one pathi 'Indian corn'. With this food we came to the hill near Tse-ram and halted there.

"On 31st May, 1929, we camped near Kang La. 1st June we came to Chu-Kar-pang and I sent Sonam Topgay to Jongri and told him to proceed at once to Mr. Wood-Johnson and hand over the Cine Camera so that he may be able to develop the films to show the places visited by us and give information about the Sahib.

"When we reached camp No. 3 Mr. Farmer had for his food three bundles of Pea soup and half a paper box of biscuits, about 2 spoonful of sugar. We took them as we had no food to eat.

Sd.—S. W. Ladan La
12.6.29."

Note. Lobsang who gave the above statement has been mentioned in the current despatches from the International Kanchenjunga Expedition now in the field.—Ed. *A. A. J.*

## The First Ascent of Mt. Coppercrown

A. A. McCoubrey

MOUNT Coppercrown (10,218 ft.), is situated in the central Purcells at the source of Coppercrown Creek (a tributary of Toby Creek) and some twenty-five miles southwest of Lake Windermere, B. C.

From the Paradise mine ridge, a favourite high level viewpoint on account of its accessibility by road and trail, the peak is a conspicuous, albeit distant, object on the southern skyline. References to it in the climbing literature of the region are few and may be enumerated briefly. Ellis,[1] in describing the view from the summit of Mt. Nelson says, in part, "Southwest Coppercrown at the source of Copper Creek . . . glistened in the sun". Harnden,[2] in his account of a later ascent of the same peak writes: "To the south, nearly twenty miles away, rises Sir Donald's twin, Coppercrown". Finally, Fay, in his article "Recent Mountaineering in the Canadian Alps"[3] in discussing the unclimbed peaks in the district, says: "The most notable of all (unclimbed) perhaps being Coppercrown, seemingly peer of the highest rising in a region a little further south".

Though familiar with the literature quoted above and not unfamiliar with the region, the writer must confess that, until 1925, he had not set eyes upon the peak, largely, no doubt, owing to his high viewpoints being much to the west and north of Coppercrown.

August, 1925, saw Noel Reilly, Miss K. McCallum, Mrs. A. A. McCoubrey and the writer camped at Earl Grey's cabin on Toby Creek. Mt. Coppercrown was our objective and, in order to get a glimpse of the peak before setting out Reilly and I one afternoon scrambled up the slopes west of the cabin. Toiling up through burnt timber to a point about 1,000 feet above the cabin, we saw, to the south east, a fine helmet-shaped peak rising well above the ridges that form the southern wall of Toby Creek. After a photographic halt, the writer descended to the cabin while Reilly continued onward to the high western ridge overlooking the green depths of Jumbo Creek.

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[1] *Can Alp. J.* 1911, Vol. III, p. 23.
[2] *Can. Alp. J.* 1912, Vol. IV, p. 102.
[3] *Geo. Review,* Vol. II, No. 1, July, 1916.

Next day, impedimenta were leisurely packed up, the writer ramming vast quantities of equipment into an enormous square pack-sack, surely the most awkward and inefficient type of back-packing equipment ever devised by man. As our pack-train had been sent back to Wilmer, it was our intention to back-pack our equipment eastward to the mouth of Coppercrown Creek and from there work up the creek to its source.

Packing finished, the rest of the party trotted gaily down the Toby trail, while the writer tottered on behind, cursing, more or less audibly, back-packing, first ascents, and Coppercrown in particular. The sound of a pack-train forcing its way up the valley, interrupted the writer's gloomy thoughts, and a few minutes later, that most delightful of interludes occurred, the unexpected meeting of a friend upon the trail. Dr. John Walker of the Geological Survey, with a packer and a few horses, was riding westward towards Earl Grey Pass and our chance meeting not only gave the writer an opportunity to sink gracefully to the ground with his burden, but also the privilege of half an hour's converse with his friend.

Bidding Dr. Walker a reluctant goodbye, the pack was again hoisted and the writer staggered onward until he rejoined the rest of the party. Camp was made in a grove of poplars on the trail, a short distance from the mouth of Coppercrown Creek. Next day, with somewhat lightened packs, we turned off the Toby Valley and followed a mining trail that led steadily up the side of Coppercrown Creek. This trail, built single-handed by an old prospector to his silver lead claim, terminated about four miles up the creek, at an elevation of 7,500 feet. The evening shadows were lengthening as we toiled up the last switchback to the prospector's camp, which was built on a projecting ledge on the mountainside.

Our peak could be seen a few miles ahead, blocking the end of the valley. A reconnaissance that evening disclosed the fact that it would be out of the question to continue along the ridge above camp to the end of the valley, as we had hoped. Accordingly, we planned to descend to the valley bottom and force our way along the edge of the creek.

Next morning, (August 22nd.) we descended the steep stony slopes of the valley to the creek 1,800 feet below and then made our way along the alder fringed stream. Progress was not rapid at first, as frequent excursions had to be made into the bush to avoid the tangle at the edge of the creek. As we progressed, the banks narrowed until

the creek was confined in a low narrow gorge, at the head of which its waters shot outward into space, forming an unusual and beautiful little waterfall.

Above this point, the valley widened somewhat and the afternoon found us in a broad amphitheatre with high cliffs on nearly all sides, down which waterfalls cascaded. The frontal moraine of a glacier formed the end of the valley and, while Reilly climbed up this and on the ice, the writer hacked out with his ice-axe a level platform on the hillside for our tent. Reilly reported, on his return, that we would evidently have to cross a high col to reach our peak.

The following morning, in semi-darkness, members of the party crawled out of the tent at 3.30 A. M. It was a cold cheerless morning, and a bitter wind swept down from the glacier above. As dawn broke, clouds rolled up the valley and, while the quartette shivered around an entirely inadequate breakfast fire, one member of the party contributed the remarks usual on such occasions; that is to say, a few pungent comments on the mental condition of people who did this sort of thing for pleasure.

We were off by 5.30 A. M. and a steady climb of an hour up the moraine and along the edge of the dry glacier was made before the rope was donned. Here the writer asked Reilly to take the lead on his first Canadian climb and we worked our way across a few crevasses over to the west side of the glacier. From here a short climb led us to the summit of the col (*ca.* 9,200 feet) which we reached at 7.30 A. M. The peak lay to our left, the route to the summit being obvious. The weather grew colder and black clouds were forming in the south. Descending about 100 feet below the col, we reached a snowstrip which we followed to the rocks of the main peak. The snow was hard and it was tiresome work kicking steps up the slope until the rocks were reached. These were mainly massive quartzite, broken up into tabular form, and we found no particular difficulty in making our way to the summit, which was reached a few minutes before nine o'clock. As we reached the summit, snow began to fall and the storm clouds drew nearer, the valleys of Toby and Coppercrown Creek being filled with clouds down to 7,000 feet. We caught distant glimpses of the peaks at the head of the Toby and were much impressed with the extent of the glaciers near the source of Jumbo Creek.

Building a cairn and leaving a record in an empty soup tin, we stayed but a few minutes on the summit. Descending rapidly over the

rocks, we attempted a short cut, but found the snow too hard and steep to glissade and we were forced up on to a rib of the peak. A further attempt at glissading lower down was abandoned on account of the icy nature of the snow. We reached the south side of the col at 9.50 and had a brief halt for food in weather much too cold for comfort. Climbing over the col, we made our way rapidly down the glacier, unroping at 10.30. Galloping down scree and moraine, our bivouac was reached at 11.10 Here the snow of the heights turned to rain and, after a meal, camp was broken at 1.30 P. M. In a pouring rainstorm we made good speed down the creek. Thoroughly soaked, we abandoned the wet brush at the edge of the creek and sloshed our way down the middle, arriving at the foot of the slope below the prospector's camp at 3 P. M. After a long toilsome ascent through mist, rain and snow, we regained the trail an hour later. Lightly laden as we were, we tore down the trail at full speed, reaching McLeod's cabin on the Toby at 5.30, very wet and cold. In a short time we had a roaring fire going in the cabin stove and the remainder of the evening was spent in feasting and drying our sodden garments.

Next morning, we permitted ourselves the luxury of a day about camp, basking in the sparkling sunshine that so often follows a Selkirk shower. The following day, thanks to the fact that we ran across a car on the trail, found us in Wilmer, sharing, as usual, the hospitality of Mrs. J. S. Barbour.

## The Joys of Mountain Climbing

JAMES LENOX BANKS, JR.

"THEN Gluck took some bread in his basket, and the bottle of water, and set off very early for the mountains."

Ruskin's words kept throbbing through my ears as Jane and I sat in the warm summer sun on the terrace of the Hot Dog Hotel at Slatz. The high peaks of the Alps dominated the horizon in every direction and below us lay the Lake Bunner with its surface unruffled except by the tiny swell from the numerous skiffs which dotted its surface. At frequent intervals we were startled out of our chairs by the cry of the croupier in the nearby Kursaal, the crashing of broken glass in the American bar beneath us, or the roar of motor lorries, loaded with tourists, rushing back and forth on the road at our feet. All else was silence.

"How about the Pifflehorn?" said Jane.

"Righto," I said staggering to my feet and upsetting a beaker of Flor d'Alpin. "I will be ready in fifteen minutes". Jane and I thought as one as regards the mountains. Her father had died on the Jungfrau in 1894, and my grandmother had fallen headlong from the Oberammergau three years later. I remember now there had been quite a scandal about it at the time. "My heart is in the Highlands" was our favorite song. It is hard to explain to the layman the peculiar and unquenchable longing that persistently compelled us to leave our comfortable surroundings in Grosvenor Square, journey to out-of-the-way places in the Alps and from there spend hour after hour and day after day in the ascent and descent of those majestic peaks which now surrounded us. As our American friends so quaintly expressed it: "we were bughouse on the subject".

Within fifteen minutes Jane and I, thoroughly equipped with heavy nailed boots, rucksacks, sweaters, axes, and a supply of spirits, canned food and rope and accompanied by our faithful guides Martin, Gregoire, Dominique and Souchard, were stumbling forward toward the foot of the Aufflestench glacier.

After one hour and 32 minutes through the intense summer heat of the Alpine valleys we reached the foot of the Glacier Moraine, the first milestone in our struggle towards our goal. It has always been my custom in arriving at the Glacier Moraine to open

a magnum of champagne, and the present occasion was no exception. I find that a magnum between oneself, one's wife and four guides is a mere appetizer, a reminder of the joys ahead. This formality having been disposed of, we proceeded enthusiastically over the rough surface of the Moraine until at exactly 47 minutes past nine o'clock, daylight saving time, we suddenly reached Gesundheit Platz.

Words cannot express to the uninitiated, to the ignorant mass in the lowlands, the majestic beauty of the Glacier as it stretched ahead of us, white in the evening twilight, awesome and silent. The surface of the ice is far different from that which we are accustomed to see at home on the lakes and in the shakers. With the peculiar Alpine twilight there is blended the pure white of virgin snow unblemished by the grayish tinges caused by the impurities of life in lower latitudes. "Quick, Martin, another magnum!" and Martin lost no time. He too never ceased to be impressed by the undying grandeur of the Glacier and all that went with it.

As is customary in ascents of this magnitude, we now proceeded to discard our goloshes, which we hid beneath a conveniently located ice-pack. Proceeding cautiously over the treacherous surface and using our axes right and left at random, we finally succeeded after tremendous effort in reaching the rocky surface of the slope up which our course lay. Again a magnum was opened and we spent a welcome three hours in the cozy Yiddisher Hut preparing for the forward rush at dawn. Martin, Dominique and I sang old Swiss ballads, while Jane slept. Gregoire and Souchard proceeded ahead with the provisions and the rest of the spirits. I have always admired Jane's ability to relax and recuperate at such moments as these. It is a gift.

At dawn we were awakened by Martin's revolver, the signal for the upward ascent. Martin, in the inimitable way peculiar to Swiss guides ranking among the first twenty, lassoed a rock 100 feet above him and drew himself up, hand over hand, to the objective point, applying an occasional toe hold, scissor or half-nelson to the more stubborn parts of the rocky surface.

It was then an easy matter for Jane and I and Souchard to follow in the order named. Less experienced climbers than ourselves often fall into the error of sending all their guides ahead of them. This is a great mistake, since it is always desirable to keep as near the provisions and spirits as possible and also to have someone below you to pick up your remains if the occasion arises. When we had all

reached the ledge, the performance was repeated again and again, until dripping with perspiration and in a state of exhaustion, we reached the razor-like edge, which stretched up to the summit of the Pifflehorn. Our only casualty so far, not an unusual one, was the loss of one of our guides, poor Gregoire, who lost his hold of the rope and fell headlong into the valley 1,000 feet below.

And now to the seasoned climber comes the great experience—the headlong dash along the ridge toward the coveted peak. A second mishap befell us during this final and exhilarating phase of the climb—the loss of Dominique, who disappeared into the depths below amid the debris of an avalanche. At last the summit,—an indescribable meleé of peaks in every direction as far as the eye can see. Below lay the panorama of lakes and villages and, over all, the sharp clear-cut atmosphere, bringing out each detail in the minutest degree! "Martin," I cried, "the cocktails," and what cocktails Martin could produce with the aid of the inimitable Alpine ice! No cocktail in the world can compare with it. After several rounds, the customary magnum was opened and tuning our portable radio in on Romano's we had a delightful half hour of dancing on top of the world.

And then the swift carefree descent, the monotony of which was broken by occasional pot shots at goats on neighboring peaks, or the crashing of avalanches in front and behind us. In what seemed an impossibly short time we were again at the edge of the Glacier Moraine, where we opened our last magnum and regained our goloshes. Unfortunately Martin sprained his ankle stepping off the Moraine onto the road with the result that we all returned to the Hot Dog by lorry. The sudden relaxation, after our hours of strenuous effort, had its usual effect upon me and I fell into a deep sleep untroubled by the cares which had hung over me at the start of our ascent.

I awakened the following morning with an awful head, but otherwise a better man. Jane was having breakfast in the sun by the window of the sitting room.

"I am dying," I moaned.

"Pull yourself together," she laughed. "We start up the Gotterdammerung by way of the Dent du Cochon at 11 o'clock.

"Oh horrors!" I cried and passed out again.

## ACTIVITIES OF MEMBERS

*Members are urged to send to the Secretary a record of their climbs, together with any new information relative to the regions visited.*

A number of our members attended the 1929 Annual Camp of the Alpine Club of Canada at Rogers Pass, B. C., from which the adjacent peaks of the Selkirks were ascended. Unfortunately, the weather did not permit the climb of Mt. Sir Donald by the northwest arête.

Stephen H. Hart made the first ascent of Mt. Lindberg, (12,000 ft.) in the Colorado Rockies.

Georgia Engelhard spent her vacation in the Canadian Rockies, making climbs of Mts. Hungabee, Biddle, Huber, Victoria, Lefroy, Sir Donald, and other peaks.

After making the first ascent of Mt. Sir Alexander, Newman D. Waffl, Andrew J. Gilmour and Helen I. Buck climbed Mt. Chown (2nd ascent); an unnamed peak (10,200′) northwest of Barricade Mt. (second ascent), and others in the Canadian Rockies.

Dean Peabody, Jr., and Marjorie Hurd, with the party of the Appalachian Mountain Club, under leadership of Robert L. M. Underhill, camped in the Tonquin Valley and travelled by pack train to the Mt. Robson region. Mts. Geikie, Bastion and Paragon were ascended and a traverse of Mts. McDonnell and Simon made. The weather did not permit an attempt on Mt. Robson, but Mts. Rearguard, Resplendent and Whitehorn were ascended.

Lincoln O'Brien led a party of the Harvard Mountaineering Club in the Alps and made guideless climbs of the Weisshorn, Rothhorngrat, and guideless traverse of the Matterhorn by the Zmutt Ridge; also climbs of Leiterspitze, Wellenkuppe, Breithorn by north face, Rimpfischhorn, traverse by north ridge; Weissmies, traverse by north ridge; Eiger by Mittellegi ridge; Jungfrau by east ridge and Aiguille du Peigne.

Noel E. Odell visited Norway and Sweden during July and August, making climbs on Galdhöppigen, Romsdalshorn (alone), Store Skagastölstind and (with Mrs. Odell) first ascent of north face of Dyrhang guideless.

Cary W. Bok visited the Eastern Alps, climbing Morteratsch, Piz Nair (traverse), Crasta Spinas (traverse) Torrone Oriental, Cima di Castello, Cima di Cantun.

John H. Strong ascended Mont Blanc, also Breithorn and Zinal Rothorn and traversed the Wellenkuppe and Obergabelhorn.

Mrs. James W. Alexander visited Chamonix and made climbs of Aiguille du Peigne, Aiguille du Midi, Grands Charmoz as well as traversing the Grepon.

John L. J. Hart made ascents of Mt. Princeton and Kit Carson Peak and a winter ascent of Mt. Audubon (13,223 ft.), all in the Colorado Rockies.

Allston Burr make these climbs in the Eastern Alps; Piz Corvatsch (solo), Piz Alv (solo), Piz d'Arlas and Piz Cambrena (traverse from Diavolezza to Vadret Pass), Il Chapütschin, La Muongia, Piz Glüschaint from Coaz Hut, Ringelspitz from Fidaz.

Laurie R. Frazeur made a trip around the world on which she followed the Nile to its source and got within view of Mt. Kilimanjaro and Mt. Kenya and made a pony trip to 14,000 ft. elevation in Kashmir, India; and though it was not a mountaineering trip, she ascended Mt. Etna shortly after an eruption, also Mt. Fuji Yama.

Francis P. Farquhar ascended Seven Gables, Mt. Ritter and Mt. Lyell in the Sierra Nevada and has issued a publication on Mt. Olympus, also "The Story of Mt. Whitney" in the *Sierra Club Bulletin,* 1929.

Norman H. Read made winter ascents of the Jungfrau and Finsteraarhorn and is enthusiastic over the pleasures of winter mountaineering, telling of a ski-run from Jungfraujoch to Concordia Hut in 25 minutes.

Edwin Muller, Jr., has published a book entitled "They Climbed the Alps", in which the exploits of the English pioneers are set forth in popular vein.

William Osgood Field spent some time in Switzerland, making climbs around the Jungfrau Joch and at Zermatt, for still and moving pictures. He showed his very remarkable films of ski-running and climbing as well as his pictures of the medieval structures in the district of Swanetia in the high Caucasus at the March meeting of the Alpine Club of Canada, in New York City.

Mary Jobe Akeley has published a book entitled "In the Land of his Dreams", descriptive of the African travels of her late husband, Carl Akeley.

Dudley Tyler Smith made ascents of Mt. Wilson, Wilson Peak and Longs Peak in the Colorado Rockies and comments on the severity of lightning on these lofty summits.

Dr. Max M. Strumia after several explorative tours made the first ascent of the Dent D'Herens by the southeast face. He also climbed the Dent Blanche, traversed the Lyskamm, made the round tour of the Matterhorn, crossing the Furgg-joch and Col Tournanche, made guideless ascent of Mte. Rosa (Zumsteinspitze and Signalkuppe) and several solo climbs in the Valley of the Lys.

Rodney L. Glisan climbed Mt. Lyell in the High Sierras and other lesser peaks.

Norman Clyde climbed in the Sierra Nevada, the Selkirks and Canadian Rockies. In the Sierra Nevada he made new routes on Mt. Sill and Mt. Palisade and climbs on other adjacent peaks believed to be new.

Elizabeth Knowlton traversed the Matterhorn by the Zmutt Ridge, traversed the Mönch by Nollen, traversed the Schreckhorn by South Ridge and Anderson Ridge to Gleckstein Hut and traversed the Jungfrau by the east ridge.

Eleanor E. Bartlett and Eleanor S. Davis (now Mrs. George Edgar Ehrman) climbed in the California Sierra, ascending Mt. San Jacinto, Mt. Whitney and Mt. Muir.

A. C. Tate made walking trips in Glacier National Park and in the Canadian Rockies and climbed Mt. Hermann and Mt. Shuksan in Mt. Baker National Forest, Washington.

Rupert B. H. Bibby traversed the Meije in the Dauphiny Alps, also the Grands Charmoz and Grepon and the Clochers and Clochetons de Plan Praz at Chamonix.

Eaton Cromwell in June and July made the most of the fine weather by making numerous climbs on Mt. Blanc and its Aiguilles, and the Aiguilles Range, including traverse of Aiguille de Bionassey, Grepon, Mt. Maudit, via northeast ridge; Dent du Requin. His summer's total was over 50 summits.

Thomas D. Cabot, on a pleasure trip to Santo Domingo and Colombia, undertook to explore Monte Loma Tina, which has for

many years appeared on the maps of Santo Domingo as a summit of some 10,300 feet and hence the highest peak in eastern North America. No information could be obtained about the peak locally and after investigation and some exploration no such peak could be found, nor any elevation over 5,000 feet in its supposed locality. He is convinced that this peak does not exist. The highest peak in the Dominican Republic is Pico del Yaqui, which is some distance from the location given for Loma Tina and only about 9800 feet high. This still makes it the highest in the West Indies but there is nothing Alpine about it. He climbed Loma del Hato Quemado looking for Loma Tina but didn't have time to try Pico del Yaqui. It has been climbed several times.

Walter L. Huber made ascents of The Tombstone, Mt. Senger, Seven Gables, Mt. Ritter and Cross Mt. in the Sierra Nevada of California.

During July, using Innsbruck as headquarters J. Monroe Thorington and Daniel Underhill visited various groups of the Eastern Alps. They first went to the Oetzthal, in which the earliest cartographical work on glaciers was accomplished, appearing on Ygl's map of 1604. The ancient beds of the glacial lakes of Rofen and Gurgl, whose floods once caused great damage, were examined. Among the peaks ascended were Zückerhütl, Wilder Pfaff, Wildspitze, and Similaun.

Thorington then proceeded to the Zillerthal, crossing the Reichenspitze, Gams-scharte, Krimmler Törl, and Sonntagkopf to the Kürsinger hut. The Venediger was ascended, and return made by way of the Ober-Sulzbachthal and Pass Thurn to Innsbruck.

Underhill journeyed to the Oberland, and with Alfred Streich ascended the Mönch, Wetterhorn, and Aletschhorn.

Polly Prescott climbed in the Dolomites, French Alps and made rock climbs in Wales. Climbed Monte Cristallo, Tofana di Mezzo and other peaks about Cortina; Grands Charmoz and Grepon, and other Chamonix climbs and traversed La Meije.

Henry S. Hall, Jr., climbed the Grand Teton and in the Wind River Mts. made a traverse of Gannett Peak and a traverse of three small rock peaks just west of "Elsie" col. Later, in the Alps, he climbed the Trifthorn, Mont Blanc and the Grépon.

# IN MEMORIAM

(Read and adopted at the Annual Meeting January 11, 1930.)

## VALERE ALFRED FYNN

1870—1929

VALERE ALFRED FYNN, one of the leading authorities on alternating current motors in the world, was born in Krasno, Russia, April 11th, 1870, son of Alfred R. Fynn and Catherine Avalon Fynn. His father was a native of County Galway, Ireland. He was a civil engineer and employed in a professional capacity by the Imperial Government on various important railroads in Russia and other foreign countries. The boy was educated in Switzerland, where he was sent at the age of nine to be with his Grandmother who had a villa in Geneva. He was graduated from the Swiss Federal Polytechnic, Zurich, in 1891. After graduation he remained at this institution for a year making a special study of electrotechnic and took higher courses at Heidelberg.

During 1895-'98 he was associated with the famous electrical engineering firm of Brown, Boveri & Co., of Baden, Switzerland, in testing, designing and erecting work and was entrusted with some of the firm's most important work at that time, including the erection of power plants at Gerlafingen, Aaran and Frankfort, Germany. After that he was chief electrical engineer to Easton, Anderson & Goolden of Erith, England, redesigning all the firm's direct current motors, introducing the slotted instead of smooth-core armature and developing a line of alternating current motors. Then he became chief engineer to Rosling & Appleby of Bradford, England, and was soon given a partnership.

Four years later, he withdrew from the manufacturing field and established himself in London as consulting engineer. In this capacity he was engaged with some of the leading English, French and Swiss firms. In 1909 he came to America as consulting engineer to the Wagner Electric Co. of St. Louis. He was numbered among the most eminent electrical engineers in the world. His engaging personality and wide interests soon won him many friends. His inventions were protected by over three hundred patents granted to him in nine different countries. He spoke and wrote in six languages

and was a prolific writer on technical matters. Most of these writings dealt especially with phases of engineering applied to the field in which he was so well versed. Many technical papers were presented before the British and American technical societies. At the time of his death there were many patents pending of machine design and control which, when placed in common practice, will be acclaimed as outstanding contributions to the electrical industry.

His mountaineering began in Switzerland when he was about fourteen years old, his first climb being a nine thousand foot peak in that country. Strength came abundantly and such was his youthful enthusiasm that he acted occasionally as porter with certain friendly guides in order to gain experience. He scaled all the most important and difficult peaks of the Swiss Alps in record time, nearly all of them without guides—among them the Aiguille Verte from the Glacier d'Argentiere and the Finsteraarhorn by the northeast face. His newer climbs in Switzerland numbered over fifty. He was an inspiration in helping and stimulating others to climb. He understood the mountains to a remarkable degree and had won various athletic honors in Europe. His outstanding abilities as a mountaineer, although recognized in Europe, became known on this side of the water by his climbs in the Canadian Rockies. According to Dr. Hickson, the outstanding ones are his first guideless ascent of Mt. Hungabee, first ascents guideless of Mt. Ringrose and Glacier Peak from Lake O'Hara in 1909, the first traverse of the whole ridge of Mt. Victoria in 1918, and the first ascent of King George in 1919, the highest of the Royal Group.

Although suffering from the after effects of a cold and sinus infection contracted on a hunt for Kodiak bear in Alaska, he made in 1922 a spectacular ascent of Mt. Victoria from the northeast, i.e., Lake Louise face with his friend, Rudolph Aemmer. "Among his latest feats, the ascent of Sir Donald at Glacier by the west face, 1923, and the guideless first ascent of Mt. Geikie in Tonquin Valley, near Jasper (after several unsuccessful attempts by others to climb the peak), and on which he took the lead throughout, are the most remarkable."[1] Steady and powerful on rock and having knowledge and good judgment of ice and snow he was an exemplar of his own saying, that the thing is not merely to climb but to climb with security. No mere recital of his climbs can do him justice. While

[1]*Canadian Alpine Journal*, Vol. XVII, p. 73.

hunting and photography rounded out his love for the outdoors, as stated, languages and a good knowledge of mathematics rounded out his general culture.

Many years ago when our acquaintance was new, the writer, about to climb Sir Donald, asked who was to be the guide. His eye lit up with amusement as in an even and re-assuring voice he said that he thought he knew the route, having a good memory for such things.

Lack of proper vacations, overwork on new patents and lengthy litigation on old ones, coupled with his old sinus trouble contributed to a run-down condition that led to carbuncles and eventually blood-poisoning. Learning that he was seriously ill, his friend and companion of many climbs, Rudolph, wired him—"Get well old-timer and together we will climb the mountains," but it was too late—the last great climb was over, doubtless bravely done like the rest. We who felt the spell of his enthusiasm are grateful and his memory shall abide fresh in many hearts.

Besides being a member of The American Alpine Club, he belonged to Alpine Clubs of Switzerland, France, Italy, England and Canada.

E. MALLINCKRODT, JR.

## BENJAMIN FRANK SEAVER

### 1858–1929

BENJAMIN FRANK SEAVER was an early member of the American Alpine Club (1903), and for twelve years served it as Treasurer and later as Vice President. He had been a member of the Alpine Club of Canada since the year 1907, acting several times as Chairman of its New York section. He also belonged to the Appalachian Mountain Club, the Fresh Air, Sierra, Green Mountain and Adirondack Clubs, also the Club Alpin Francais.

Mr. Seaver died in Brooklyn, on April 26, 1929. He was the son of Benjamin Francis Seaver and Lucy Jewett Seaver. His grandfather was Benjamin Seaver, who, in 1852, was Mayor of Boston and a founder of the Boston Public Library; his descent was from Robert Seaver, who came to Roxbury, Mass., and was a freeman there in 1637.

On his mother's side, his forebears were John Jewett and Lucy Ripley Jewett, who were from the "old Manse" at Concord, Mass.

He was ever thoughtful of others. If the objectives were in the New Jersey Mountains, he would sometimes go prepared with bandages and even a serum for snake bites. Unlike Hazlitt, a pedestrian who preferred solitude, saying—"I cannot see the wit of walking and talking at the same time", Mr. Seaver expressed the joy of the mountains and forests. Sensitive to the appeal of fine scenery, he felt that an appreciation of it was almost a duty.

In former years, he was a frequent visitor at the Ravine House, at Randolph, New Hampshire, where his strolls would lead him among the high mountains. But later his summer tours were in the Canadian Rockies; and even after illness had limited his climbing, he enjoyed the country about Banff. Perhaps few things gave him greater satisfaction, than the dedication of the "Seaver Hut" by his friends in Canada, as a tribute to this friendship.

By a will made in 1913, he gave bequests to the Appalachian Mountain Club, American Alpine Club, Alpine Club of Canada, Fresh Air Club of New York, and Sierra Club of San Francisco. His fine collection of mountaineering books was left to the Brooklyn Public Library.

HARRINGTON PUTNAM.

[Dr. Freeman Allen, an active member of the Club since 1924, died in Boston on May 3, 1930, after an illness of several months.]

# PROCEEDINGS OF THE CLUB

## SECRETARY'S ANNUAL REPORT, 1929

During the past year the officers of the Club have been chiefly engaged in carrying out the plans previously made and putting the increased activities of the Club on a sound basis.

Our room in the Explorer's Club Building has proved very satisfactory to us, and has been temporarily supplemented by an adjacent room rented by one of our interested members.

The complicated account with the New York Public Library concerning the ownership of the mountaineering books and photographs kept by it for our use, expense of cataloguing books, mounting photographs, etc., which has been under negotiation by a Special Committee, has been settled on terms quite satisfactory to us, and these books, together with the valuable collection donated by Dr. J. Monroe Thorington, and volumes received from the estate of Benjamin Frank Seaver, through the Brooklyn Public Library, his legatee, and books from other donors, are now in our Club Room and are being catalogued.

The first number of the *American Alpine Journal* has been issued, and we think compares favorably with other similar publications. Matter for further numbers will be readily available, and the extent of later issues will be determined by the funds available for that purpose.

A revised edition of "A Climber's Guide to the Rocky Mountains of Canada" has been partially printed.

Following the direction of the last Annual Meeting the Club Booklet was issued containing only the By-Laws and a list of the members. The omission from it of the members' climbing records has caused considerable dissatisfaction. The Club's income available for publications is, however, limited. We are not in a position to issue all the publications that would be desirable and useful, and the proper allocation of our funds among our several publications is a matter which must be very carefully considered.

The present membership of the Club is 198, of which 11 are honorary. During the year Messrs. Fynn and Seaver, active members, and Captain J. P. Farrar, Honorary Member, died, and an active member resigned. Against this, Geoffry Winthrop Young, Esq., was elected to Honorary Membership and eight new active members were elected.

A number of new ascents in Canada and the U. S. have been reported by our membership. Many have spent their vacations climbing the important peaks in Canada and the Alps, and one has investigated the Caucasus.

DANIEL UNDERHILL,
*Secretary.*

Since the annual meeting of the American Alpine Club in January, Dr. Thorington has again made several generous donations of books to the library. We have also received gifts from Mr. Odell, Mrs. Handy, Dr. Potter, Mr. Tanner, and from the estate of Val A. Fynn bound volumes of the Year Book of the Swiss Alpine Club and nine large albums of photographs.

## ANNUAL MEETING

### January 11, 1930

The Twenty-seventh Annual Meeting of the Club was held at the rooms of the Appalachian Mountain Club, 5 Joy Street, Boston, Mass., President Ladd presiding. Thirty-three (33) members were present, and also a number of guests.

The Treasurer's Report was read by Fisher and on motion approved and filed. The report shows income receipts from January 1st to December 31st, 1929, to be $2,410.91, with payments therefrom amounting to $2,112.94, leaving a balance for the year of $297.97, and a capital fund amounting to $22,200.75, of which capital fund the Club House fund amounts to $18,360.80. The Club House Fund includes $6,000. Explorers Holding Co. 6% income bonds donated to the Club during the past year.

The report of Helen I. Buck, Librarian, was read and approved. It showed that nearly 700 books, sets of mountaineering journals and bulletins and miscellaneous magazines and reviews were presented

to the Club by members during the year. Of these, Dr. Thorington donated over 300, as well as models of mountain ranges. Hainsworth donated andirons. Mrs. Val A. Fynn donated a valuable collection of lantern slides. The Brooklyn Public Library gave 29 volumes from the library of our late Vice President, B. Frank Seaver, and books and magazines have been received from Palmer, Carpe, Dr. Ladd and Dr. Mary G. Potter. The Club has taken over about 300 books formerly in our collection in the New York Public Library, also many fine photographs. Cataloguing these books is in progress.

The report was received with expressions of approval on the remarkable growth of the Library.

Palmer reported on behalf of the Publication Committee that the first number of the *Alpine Journal* had been issued and that good progress had been made toward the next number. The second edition of "A Climber's Guide to the Rocky Mountains of Canada" was far advanced, and it was expected that the cost of this publication would be about $500. Also, that there were no definite plans for further numbers of Alpina Americana at this time.

The report of the Special Committee on the adjustment of the dealings between the Club and the New York Public Library concerning the Club's books, photographs, etc., was read by Dr. William S. Ladd. The report showed that after protracted negotiations, the claim of the Library for $659.22, for its expenses in purchasing, binding and cataloguing the books and mounting the photographs was reduced to $300, by the Library's generous consent to retain and give credit for certain books which the Club could procure elsewhere in the future. The report was approved with appreciation of the services of this Committee consisting of Messrs. Palmer and Ladd.

A memorial to our late member, Benjamin Frank Seaver, prepared by Hon. Harrington Putnam was read by the Secretary and adopted.

A Memorial to our late member, Val A. Fynn, was read by Edward Mallinckrodt, Jr., and adopted.

The Nominating Committee—Whipple, Greene and Weed, presented the following nominations for office:

*President*

Dr. William S. Ladd — New York

*Vice Presidents*

Francis P. Farquhar — San Francisco, Cal.
and
Dr. J. Monroe Thorington — Philadelphia, Pa.

*Secretary*

Daniel Underhill — Brooklyn, New York

*Treasurer*

Joel Ellis Fisher — New York City

*Councillors*

William R. Hainsworth — New York City
and
S. Prescott Fay — Boston, Mass.

It was moved, seconded and unanimously carried that the Secretary cast one ballot for these nominees. This was done and they were declared elected.

President Ladd made a verbal report on the progress of the Club during the year. He read a letter from a member containing certain specific points of criticism and opened the meeting to discussion of each point in turn. Several points of view were expressed, among them the desire of certain Boston members to form a Boston section of the Club. The President said that he felt sure that such action would be looked upon with approval by the Council.

Mr. Henry G. Bryant presented in person to the Club a Scrap Book containing a complete record of the Club History including a copy of every printed notice that has been issued to date. This is a unique collection of memorabilia most carefully arranged and it is a valuable addition to our archives.

The meeting then adjourned and the following illustrated talks were given:

Kenneth A. Henderson—1929 Ascents in the Wind River Range, including first traverse of Gannett Peak, the highest summit in Wyoming, and climbs of five unnamed peaks at head of Dinwoody Glacier. The climbs were mostly first ascents, all were new routes and some very difficult. Also, the difficult first ascent of the Grand Teton by its east ridge.

Dyson Duncan—Climbs of the Harvard Mountaineering Club in the Alps, 1929, with description of climbs of the Weismeiss and Portiengrat from Saas Fee and guideless climbs of the Rothhorn Ridge from Zermatt, and of the Weisshorn from Randa.

Mr. Terris Moore then showed some very interesting moving pictures of ascents in 1929 in the High Andes, including the first of Mt. Sanguai and Mt. Chimborazo, on which Whymper's route was followed.

DANIEL UNDERHILL,
Secretary.

## ANNUAL DINNER

### January 11, 1930

The annual dinner of the Club was held at the Copley-Plaza Hotel, Boston, on the evening of January 11, 1930. Ninety-three (93) members and guests were present.

President Ladd addressed the diners and introduced Mr. William T. May, President of the Appalachian Mountain Club, who presented the greetings of that Club.

Dr. J. W. A. Hickson, being called upon, expressed the greetings of the Alpine Club of Canada.

Professor Charles E. Fay spoke briefly of the beginnings of the Mountaineering Clubs in this country and the beginnings of this Club, in which he was instrumental.

Dr. Harry P. Nichols paid a tribute to the younger members of the Club.

Mr. Noel E. Odell gave an account of the several Oxford University expeditions to Spitzbergen for the purpose of survey of its glaciers and study of its animals and birds in 1921 and 1924. It was illustrated by slides, showing the trips of the parties across the island and the several peaks which were climbed.

Dr. A. J. Gilmour gave an illustrated account of the first ascent of Mt. Sir Alexander made last summer by his party consisting of Newman D. Wafflf, leader, Miss Helen I. Buck and himself. The achievement of the party in reaching this remote peak, over seventy miles distant from Mt. Robson and concerning which little definite information was obtainable, reconnoitering it, and after several attempts, making the difficult climb to the summit and return in twenty hours, was fully appreciated by all his hearers.

Mr. Bradford Washburn ran and explained several reels of moving pictures taken last summer, under his direction, of the ascent of the Grepon by him and his brother. The pictures were exceptionally fine and showed capitally the details of this difficult rock-climb.

## REPORT OF MEETING OF PACIFIC COAST MEMBERS

The meeting took the form of an informal dinner at the Faculty Club, Berkeley, California, April 25, 1929. The following were present: Miss Eleanor Bartlett, Miss Eleanor Davis and Messrs. Joseph N. LeConte, Duncan McDuffie, Ansel F. Hall, Theophil L. Fritzen, Walter L. Huber, and Francis P. Farquhar.

The presence of the two ladies from Colorado was especially appreciated. There were no formal proceedings, but Mr. Farquhar read a letter from President William S. Ladd, giving an account of recent developments in club matters. He also described his recent visit to the new club rooms in the building of the Explorers Club. Several other matters mentioned by Doctor Ladd were discussed.

In the matter of dues, all present felt that the growth of the club at this distance from New York would be more rapid and would include more members of desirable character if the old rate of dues, namely $5, could be retained. It was felt that it might be difficult to interest new members at a higher rate until the benefits to those at a great distance were more apparent. By keeping the stated dues at a low figure it is believed that members might respond individually to calls for contributions for specific purposes and thus accomplish desired results better than by compulsory dues. The proposition for graduated dues based upon the distance from New York seemed to all present to be the proper solution. It was felt that probably two grades or possibly three would take care of the situation.

In regard to keeping the climbing records, it was the unanimous belief that these records were valuable and useful, especially to the more distant members. Two uses were mentioned. First, the records serve to individualize to some extent the members who are not known to each other personally. Second, it affords an opportunity for any member desiring to climb a particular peak, or in any district to write directly to the members who have climbed in that district. It is realized that to publish this list every three years may be too much of an expense, but we all hoped that it could be done at least every five years, and that the records could be kept up to date either through the Journal or through other means.

The prospect of having a Journal of our own was welcomed with enthusiasm and all members promised to give consideration to the matter of contributing articles and photographs.

Following this discussion, each member present gave some reminiscences of his or her mountaineering experiences and there was a general discussion of a number of mountain climbs and mountaineering episodes.

All declared that we should hold another meeting early in the fall at which we hoped to secure a larger attendance when some of our absent members have returned from foreign parts.

FRANCIS P. FARQUHAR.

## BOOK REVIEWS

*Alai-Pamir Expedition, 1928.* Vol. 10 of Deutsche Forschung. Karl Siegismund Verlag, Berlin, R. M. 10.

Although this is labelled as the preliminary reports of the German participants in this remarkable expedition, it is a very complete synopsis of the work accomplished. The various members of the expedition have each contributed a chapter on their particular phases of the work and although those of the topographer and the leader of the climbing group will probably most interest us here, the others are by no means to be lightly skipped over. The expedition, one of the most pretentious of recent years in Central Asia, covered the eastern Pamirs and the mountain chains east of the territory penetrated by the two expeditions led by W. Rickmer-Rickmers in 1906 and

1913. In a territory little known to explorers and wholly unknown to climbers, the field of the expedition was necessarily a large one.

After the introduction explaining the objects, ways, means, and sponsoring of this elaborate expedition, W. Rickmer-Rickmers shows us its daily life as seen by the leader and then that of the leader himself, which necessarily at times was a hectic one. We can feel his annoyances at the misfortunes and his deep despair when only a few pounds of silver remain and it is necessary to send messengers coursing about the country.

The topographical work was done by R. Finsterwalder, ably assisted by H. Biersack and at times by K. Wien of the climbing group. The survey was done by photogrammetric methods. The Russians had determined the principal positions, although a small short-wave radio receiver was carried which did not succeed very effectively in picking up time signals on account of heavy interference. Although an enormous amount of ground was covered, the preliminary maps which have been compiled to go with the book, show the thoroughness with which topographical work was done. Necessarily there are gaps, but considering the exigencies of time and distance it is remarkable that there are not more. Two definitive maps are being prepared, a detailed one of the Seltau group and a larger general map of the whole district.

The geological work was undertaken by L. Nöth, who covered a great deal of ground. The chief upfolding of the Pamirs first occurred at the end of the Paleozoic, probably in the Carboniferous. Then, after several advances and recessions of the sea, the mountain-forming movements began to occur in the Alai valley syncline during the early Tertiary. This movement reached its height during the middle of this period when the Mesozoic and old Tertiary strata were folded up and pushed over the Pamir ranges, since which time it has been a process of denudation and erosion. Statigraphy, morphology, and glaciology were all studied and duly recorded, but nowhere does this short account become wearisome with details.

The zoological work was carried on by W. F. Reinig, necessarily detached from the rest of the expedition. He made an extended trip to the Great Pamir and thence back through the western Pamirs to Kara Kul, the starting place. The vegetation was very scarce and as might be inferred therefrom, the wild life was also. The trip was, however, fruitful in results, as the fact that some 12,000 insects were

captured indicates. The extremely rigorous conditions of life make for a rare and not very varied fauna, but this work is valuable as showing what can exist under such conditions.

The philological and ethnographic researches were carried on by W. Lentz, who journeyed to Tashkent about a month ahead of the rest of the party to become familiar with the spoken language. The Tadjik Persian formerly spoken in Bokhara and Turkestan is gradually being ousted by the Eastern Turki as the Uzbeg advances westward and becomes politically dominant in these portions of the U. S. S. R. Only in the mountain valleys, is Tadjik Persian to be found today to any extent. Perhaps its principal appeal is its connection with the past, as it is the oldest Iranian dialect now in use. The influence of the Turkish upon it is considerable and the whole work may help to throw some light upon the historical and racial background of this region, of which we know so little.

The climbing group was headed by Ph. Borchers and included E. Allwein, E. Schneider and K. Wien. Although their climbing activities were somewhat circumscribed by the necessity of exploring and assisting in the mapping, they accomplished a large number of ascents, of which that of Mt. Kaufmann (7,130 m) is the greatest. It was thought at the time to be the highest mountain in the U. S. S. R., but is now found to be surpassed by Garmo (7,500 m) in the Seltau. This peak was renamed Peak Lenin by the Soviet authorities. Will the name stick now that a higher mountain has been found? Whether they now hold the record for the highest complete ascent is still a matter of dispute. Besides the climbing, they discovered and explored the Notgemeinschaft Glacier (over 25 miles in length), explored the whole length of the Fedschenko Glacier (48 miles) and discovered passes therefrom to both the Yas Gulem and Vanch valleys.

Only a sketch of the work can be given here. The book itself should be read to gain a true idea of the enormous amount accomplished by the most elaborately organized mountain expedition of recent years.

K. A. H.

*Climbs and Ski Runs.* By F. S. Smythe, with a foreword by G. Winthrop Young. Pp. xx+307. Illustrated. Blackwood & Sons, Edinburgh. 1929. Price 21s.

Mr. Smythe is well known to mountaineers from his two great climbs on the Brenva face of Mont Blanc in 1927 and 1928. That there are also coupled to this well marked mountaineering ability, a keen perception of esthetic values and a power of descriptive narration, is amply shown in this most excellent book. We would hesitate to endorse the publisher's claim that "Nothing so good in this way has appeared since Edward Whymper's time", for, off-hand several books could be mentioned that are fully its equal, not the least of which is Mr. Young's charming book "On High Hills." Mr. G. W. Young, by the way, contributes a short foreword which may well cause us to ponder the future of mountaineering, but serves to set us in an excellent frame of mind for the rest of the book.

The style is lucid and easy and, best of all, no matter what the climb, there is an appreciation of externals: the view, an oncoming storm, or a sunset. It is such things that bring us back to the mountains year after year, and cause us to undergo the hardships and the difficulties which seem so great at the time and so trivial afterwards. The book is a series of incidents and experiences, rather than an autobiography of a mountaineer, though his development through the stages recognized by all of us, is clearly apparent. Each incident is chosen for its diversity and to bring out a certain side of that very changeable and ephemeral substance known as mountain mood. Every climber will thrill with appreciation as he recognizes an experience similar to his own on another peak, and the non-climber will feel the shivers run up and down his spine to the tune of "O what fools these climbers be, but how I like to read about them."

Each chapter is a separate sketch in itself and so worthy of its place in the book that it is difficult to signalize any special one. The experience on the Schreckhorn in an electric storm, is one that no one who has been on a mountain in such conditions, envies him. The ascent of the east ridge of the Aiguille du Plan is a tremendous climb which might well be made the climax of the book, were it not overshadowed by the really epoch-making ascents of the Brenva face of Mont Blanc. Winter mountaineering, with its adjunct the ski, is well treated and that from the standpoint of the mountaineer. There are several chapters to tempt the reader on this subject, but

none of more wide-spread interest and importance than that on "Avalanches."

The book closes with the "Philosophy of a Mountaineer" which fortunately does not attempt to answer that moot and very old question, but rather states a case and leaves us to ponder anew that immemorial puzzle, though we may, as Mr. Young suggests, in the future no longer find "mountain-climbing . . . an escape into adventure from our increasing uniformity and monotony". We recommend that every climber read this very charming work and we believe that having read it, he will want to possess a copy of his own for future enjoyment.

K. A. H.

*Alpinisme Hivernal,* by Marcel Kurz. Payot, Paris, Second printing, 1928. F. 50.

The reprinting of this justly famous work is a propitious moment to bring it to the attention of our readers. One of the few books written in French on winter mountaineering, and coming from such a well-known writer, it must command the attention of all.

Commencing with a history of winter ascents, the text leads forward naturally to the development of skiing as an appanage of winter mountaineering. The chapters on the Alpine Winter, and Snow and Avalanches, will interest particularly the skier in the Alps, but they contain considerable data for others in less favored regions. He follows Lunn to a great extent and, in fact, quotes him extensively. The chapters on equipment and technique are, of course, much as in other similar books, but M. Kurz offers suggestions from his own wide experience which possess unique value.

The style is easy and fluent throughout and the descriptions are well drawn, but it is the delineations of human character and reactions which lend a particular charm to this book. Who, for instance, could forget that inimitable scene when Chouchou, recovering from his surprise, empties the flask of cognac, or that wild ride down the Vispertal from Stalden with a half "boiled" driver? M. Kurz who has done, probably more than anyone else to open the Pennine Alps to winter mountaineering, tells the story of his own courses with dash and vividness of detail.

The book although well gotten up with large print and good margins, unfortunately is marred by many misspellings and mis-

placed letters. Despite this, it is well worth having in one's library and once had, will be read with constant pleasure and enjoyment.

K. A. H.

*They Climbed the Alps*, by Edwin Muller, Jr. Jonathan Cape and Harrison Smith, New York. Price $3.50.

Under the title "They Climbed the Alps", Mr. Edwin Muller, Jr., has given a very interesting and often a dramatic account of the evolution of the art of mountaineering from the earliest attempts, when an awkward alpine stock and a small hatchet were the only weapons of offense, to the highly specialized technique of the modern climber.

The author has deftly strung together the story of the famous alpine ascents—Mt. Blanc, Matterhorn, Weisshorn, Grépon—and in the telling thereof, sometimes in his own words, often in the words of the climber himself, has given a vivid picture of the methods evolved in slowly overcoming these alpine giants. Whymper's incomparable siege of the Matterhorn loses nothing in the retelling. Balmat, sleeping shelterless again and again on Mt. Blanc, toils up to its summit. Mummery, climbing up his famous crack on the Grépon; Tyndall, struggling against apparently hopeless odds on the Weisshorn; G. W. Young, ascending new and more difficult routes by methods little short of the miraculous—all are names to conjure with in mountaineering annals and so dramatic are the stories that one marvels anew at the endurance of the human spirit.

The book is not at all technical. The style is simple and direct and the illustrations well chosen to show the more perilous side of mountaineering. In the last chapter "Why They Do It," the author attempts to explain that which to the laity is so often inexplicable—the ceaseless allure of the mountains to the climber.

"For certain brief snatches of time, a man may have glimpses of glory that are on a different level from the rest of living. To one it may happen when listening to Beethoven's Fifth, to another when the birds come back in the spring, to most for moments when in love. They are never more than moments, gone as soon as realized, yet they are worth months of ordinary living. For a fleeting moment we feel that the kingdom of heaven is very near to us, that with only a little effort we could tear away the veil. . . . The man who climbs mountains knows that if he summons his courage and ventures

up into the snows he will be rewarded somewhere by one of these moments of ecstasy. . . . And the memory of such moments is a precious jewel that he carries all of his life. His way may lead through dingy, sordid paths but with the mountains in his background he can never be thoroughly unhappy."

M. H. S.

*"Mountaineering,"* Encyclopaedia Britannica, 14th Edition, 1929. Vol. 15, pp. 929-932 with 2 pp. illus.

This subject has been handled by the well-known authorities William Martin Conway, Arnold Lunn, and Howard Palmer. The article is divided into several parts. There are first, general definitions of mountaineering, its dangers, the methods used and outfits required. Then a brief history which touches upon the various districts with special mention of some of the more recent accomplishments. Palmer has covered the United States and Alaska; all else including the definitions is signed by Conway and Lunn.

The general definition of mountaineering is very well put indeed. Emphasis is placed upon the major subdivisions, rockcraft and snowcraft. Subheadings cover the various dangers encountered such as falling rocks, falling ice, snow avalanches, falls from rocks, ice and snow-slopes, crevasses, and weather. A brief and somewhat inadequate paragraph on outfits is complementary to previous scattered references. Under these headings, the treatment is essentially to define causes, and explain means of overcoming or avoiding the dangers which may be encountered. The positive as well as negative side is often brought in by frequent definitions of some of the technical requirements. One sentence might well be noted by all mountaineers —"The great principle is co-operation, all the members working with reference to the others and not as independent units" . . .

Following "History", are further headings such as "Alpine Climbing", "French Guideless Climbing", "German Mountaineering", and "The Canadian Alps". A random list of recent books on various topics is here included.

The development of mountaineering in the United States is traced from the founding of the Appalachian Mountain Club in 1876. The movement rapidly spread to Colorado in the late Eighties and to Canada in the Nineties. In 1902 the American Alpine Club was founded bringing together a nation-wide group devoted to the "kindred interests of alpinism and Arctic exploration" . . .

There is a general statement as to the nature of the mountain ranges of the United States, and reference to some outstanding peaks. It is stated that while a number of peaks have been climbed by difficult routes, there is always an easy side.

Mention is made of the chief western clubs, namely the Sierra Club, Mazamas, Mountaineers, and Colorado Mountain Club. With but very few exceptions, the climbing available in the United States is not strictly alpine in nature.

Alaskan mountaineering is said more to resemble Arctic exploration than ordinary mountaineering. The chief ascents to date in Alaska are Mts. McKinley, Logan, St. Elias, Blackburn, Natazhat and Wrangel. Each one of these climbs required weeks or longer for their accomplishment. "On no other mountains in the world must the climber live so long on ice and snow as in Alaska . . . "

Altogether the subject is treated in a very readable manner and gives to the layman, as is intended, a fair, if necessarily brief, picture of the sport and pursuit of mountaineering.

H. S. H., Jr.

## NEW EXPEDITIONS

### First Ascent of Mt. Sangai, Ecuador

Mt. Sangai in Ecuador is an active volcano, which for many decades has borne the reputation of being one of the most violent in the world. Detached from the main chain of the Andes, it juts out into the Amazon basin, a lonely sentinel, 17,464 feet above sea level. Although only about one hundred and fifty miles south of the equator, the last half mile of altitude is covered with a crown of ice and snow, which precipitates millions of tons of water and ice down the steep slopes at times of the irregular major eruptions. It is not the altitude which has prevented the attempts on its summit during the past two centuries from proving successful. The cause lies in three things: first, the labyrinth of mighty ash canyons which circle it on the three approachable sides with 500 square miles of difficult terrain; second, meteorological conditions which maintain almost constantly a pall of mist and cloud over the whole area and render even the locating of the volcano difficult; and third, the superstitious fears of the native Indians who never explore the labyrinth of canyons and on whom one must depend for cargo bearers.

All early attempts to reach the summit failed far short of the objective. Not until 1925 did anyone reach a high point on the ice cone, when Commander George Dyott, an Englishman, after months of effort finally explored a route through the canyons and came to grips with the ice-field. On his first attempt he was stopped by snow blindness and on his second he got entangled in a crevassed area on the southeastern shoulder, while his companion was incapacitated by "siroche." His following of Indians refused to proceed beyond the snow-line.

On July 15th, 1929, a zoological expedition, headed by Robert T. Moore of the Department of Vertebrate Zoology of the California Institute of Technology, and accompanied by his son, Terris Moore of Williams, Lewis Thorne of Yale and Waddell Austin of the University of California, left the last inhabited Indian village of Alao and plunged into the water-soaked wilderness to the north of Sangai. The party was beset by many difficulties—daily rains, loss of equipment, desertion of the Indians at critical moments and reduction of food supplies to the danger point on several occasions, when fortunate killings of deer or tapir made possible a continuance of the attempt. After eighteen days of constant rains the party worked its way through the maze of canyons and climbed above the shroud of mist to the snow-line and to blinding sunlight.

After two unsuccessful attempts from a camp at about 15,000 feet, on the third, the party set out at about 6 a. m. on August 4th and succeeded in cutting steps up the steep frozen slope of the cone to the north of the crevassed area, which had stopped Commander Dyott, and at 1.50 in the afternoon, the leader gazed for the first time into the crater. Dense clouds of light-colored gas poured from the orifice. The leader and his son proceeded together to the highest point on the precipitous rim. In spite of mountain sickness which affected one member, the entire party of Americans reached the top, but such Indians as had not deserted earlier, feared to cross the snow-line. The 15,000 ft. camp was on the northwest side of the peak and the route took them on a traverse of the steep slopes towards the south until the area of crevasses and hummocks was reached, when they zig-zagged back towards the western side again. From the top the party made a rapid descent past the 15,000 ft. camp to a larger camp 1,000 feet below the snow-line. Moving pictures, under clear conditions, were secured of the summit crater and its surroundings.

R. T. M.

## The S. E. Face of the Dent d'Herens (First Ascent)

The S. E. face of the Dent l'Herens, 4,180 m. (4180 m.= 13,715 ft.) towers over 3,000 feet above the Cherillon Glacier. It is limited toward E. by a jagged ridge, which divides the Cherillon Glacier from the Mont Tabel Glacier, and partly supports the latter. This ridge is designated as S., and was followed by Harold W. Topham with Aloys Supersaxo, Clemens Perren and Aloys Pollinger, July 19 and August 31, 1889. Another party touched the S. E. face of the Dent d'Herens; Guido Rey, with Jean Baptiste Perruguet, Aimé and Ange Maguignaz, descending from the Pointe Blanche, bivouacked at a height of about 10,400 feet or about 600 feet above the Cherillon Glacier. From the bivouac place, on August 21, 1898, they descended to the Cherillon Glacier. The mean inclination of the S. E. wall in the portion followed by our party is 56°.

The incognito of the ascent were the 1,500 odd feet of the middle portion of the wall. The inclination of this part is formidable.

A preliminary exploration of approaches was done on August 2 and 3, 1929. The exploration was furthered on August 16, but an attempt on August 17 was frustrated by bad weather. On the same day a final survey of the S. E. wall was done, and the approach to the S. ridge was explored.

On August 31, Luigi Carrel and Max M. Strumia left the newly built hut at 'Lo Rionde' 2,804 m. above Breuil, at 2.45 a. m. By prairies and descending somewhat we reached at 3.20 a. m. the lower extremity of a rocky rib dividing the Cherillon Glacier from the 'Ghiacciaio del Leone' (without name on S. map). By turning this, the true left lateral moraine of the Cherillon Glacier was reached at a point about 2,700 m. and it was followed for a while until it appears blocked by a huge mass of rock. From this point the Cherillon Glacier was easily reached 3.50 a. m. The glacier was then crossed in a large circle, so as to avoid the seracs below. The crossing was done without losing height in about 10 mins. At 4.45 a. m. we were at the base of a steep ice cone, the apex of which continued into a couloir to the left of a ridge forming our approach. The rocks which we were to follow belong to a spur that detaches itself from the great S. E. face of the Dent d'Herens between the couloir descending from the true right of the Pointe Blanche and the S. ridge of the Dent d'Herens itself. The lowest portion of this spur is marked with quota

2,984 m. on the map of 'Monte Cervino' 1:20,000 of the I. G. M., 1922. The ice cone was ascended in less than 10 mins., after which an easy approach was made to the rocks on the right. These were in the beginning, easy, but covered with much loose debris. The first difficulty encountered was a chimney 4.55 a. m. bounded by smooth *plaques,* and ending with an overhang. It was turned by a ledge on the left, and the couloir reached. This was followed for a short while (loose rocks) then, on the right side of the couloirs, came various steep *plaques,* and another chimney. The couloir was again reached and followed to near its upper end, where it turns somewhat to the right and ends against overhanging rocks (6.00 a. m.). A passage followed over very steep and smooth *plaques,* to the right of the couloir, about 100 ft. in height and extremely difficult. This portion had been descended by the Rey party *en rappel.* With the aid of an iron piton, and with Carrel swinging from the rope under an overhang, in 40 mins. of exhausting work we were above the difficulty, very near the place of bivouac of the Rey party. We then turned to our left, to face the main wall. This we reached by following a thin, horizontal ridge, where the spur so far followed, ended.

We followed straight up by good rocks until a little shelter was reached at 7.20 a. m. We left it at 7.45 a. m.; a little above, a patch of snow was found. Immediately above this a difficult chimney is encountered, above which the ridge vanishes in the great wall above, which at this point sweeps upward at a terrific angle. Turning to the right, it is possible to reach another ill-defined rib formed of extremely steep rocks, with many holds, but not as secure as before. This rib is followed in the direction of a large, red gendarme of the S. ridge which is immediately above, until the rib ends against a perpendicular wall about 60 ft. in height ending in the said ridge. A first attempt to reach this on the left ended against a huge unstable overhanging rock; a ledge was then followed for a few feet to the right, after which a direct difficult climb brought us to the S. ridge, 9.40 a. m.

The point where the S. ridge was reached is on a level with the Col des Grandes Murailles (ca. 3,850 m.) and near the summit of a very large gendarme the rock changes colour very abruptly, becoming of a dark reddish brown. This band is very readily seen from the E. We left at 10.10 a. m. The top of the gendarme of white rock was turned on the right, E., and the ridge between the white and the red gendarmes was reached by a difficult passage along

a vertical fissure. The S. ridge was then followed up to where it joins the S. W. ridge coming from the Col des Grandes Murailles (3,975 m.), 11.30 a. m. Here the difficulties ended and at 12.30 we were standing on the summit, having followed in the last portion the E. arête.

The descent was made by the W. arête, reaching Praraye at 22.15, including a halt of 1½ hrs. on the summit and 1½ hours spent lying flat on the ice a little below the summit, waiting for a severe electrical storm to pass. Halts of 1 hr. and 10 mins. were also made later.

The ascent is a very interesting one but it is rather fatiguing; in the portion between quota 2,984 m. and 3,975 m. or about 1,000 m. the difficulties are continuous. There are three very difficult passages, the first one of which, over the *plaques* descended *en rappel* by the Rey party, could be greatly facilitated by placing a cable about 100 ft. in length. The ascent should not be undertaken unless weather conditions are excellent and there is little snow on the face. Even in this condition the lower portion of the wall is exposed to rock falls after sunrise, as experienced by the Rey party. We did not, however, during the whole course of the ascent suffer from any rock fall, although the nearby face and couloirs of the Pointe Blanche and Grandes Murailles were raked by falling stones all day.

M. M. S.

## VARIOUS NOTES

*Sierra Nevada de Santa Marta.* This fine range situated in northern Colombia, was visited in March, 1930, by Mr. and Mrs. Thomas D. Cabot. Although easily accessible from the eastern seaboard, and with peaks 19,000 feet in height, the range is almost unknown to alpinists. Being completely surrounded by low land, it is not a part of the Andes, but is a separate group close to the ocean.

The peaks are covered with magnificent glaciers. They are not volcanic cones but present cliffs of rock and ice and fine arêtes to tempt the climber. The highest *massif* with a triple summit is in the center of the range and is called by various authorities Horqueta, Picacho, and Colon. There are no other peaks approaching it in height. Earlier parties have approached the peak from the south side, which they reached from Fundacion, or Rio Hacha. Mr. and Mrs. Cabot went

in from Rio Frio and by following Indian trails through the jungle reached the *paramos,* or alplands, a few miles from the main peak. This means of approach saves four or five days each way, but they were very short of time and in order to catch their steamer home, they had to return after reaching an altitude of about 12,000 feet on the *paramos.*

The north side of the mountain is a large névé leading to all of the three summits. They were unable to tell which summit was the highest. The easterly summit looked fairly easy by the western snow-field and main (west arête); the western summit by the north arête. The central summit would probably be more difficult; the eastern arête looks the best but has a break near the top which might prove bad. Besides the three summits of the main peak, the only ones they saw worth climbing were some very steep, but much lower, rock peaks to the north.

From Santa Marta, which has several passenger steamers weekly, to snow-line takes only three or four days. The route is through the densest of jungles inhabited by wholly uncivilized Indians of the Ahruaco tribe. This tribe is not dangerous, as is the Goajira to the east and the Motilone to the southeast. It will probably be impossible to get Indians to act as porters, but trinkets, etc., should be brought to exchange for food and minor services. The only trails are foot trails, too steep for mules. They can be negotiated by burros with a good deal of assistance.

As to the altitude of the peaks, various authorities give figures all the way from 16,419 to 19,310 feet. The former is given by the British Admiralty and the United States Navy charts and the latter by de Brettes. *The Encyclopedia Britannica* gives two figures—16,728, and 17,389. Mr. Cabot believes the peaks are over 19,000 feet, for a careful survey was made by the United Fruit Company engineers, who measured a base-line by accurate co-ordinates near Sevilla and triangulated the peak visible from that point. This worked out almost exactly 19,000 feet. This is probably the western summit and the central summit may be slightly higher. The famous Alexander Von Humboldt gives 19,100 feet as the altitude.

De Brettes claims to have climbed the highest summit in 1891. He reached the summit alone. There were clouds to the north and east, so it is quite possible that he might have thought he was on the highest peak with higher peaks invisible behind the clouds. Simons and Sievers also reached great altitudes but both say they were unable

to get to the top. So far as is known, no one has tried the north sides of the peak. De Brettes says the south side is much less steep than the north side.[1]

T. D. C.

* * *

*The Salmon Alps of Northern California.* A very rugged, although not a very lofty range of mountains are the Salmon Alps of northern California. Situated on the headwaters of tributaries of the Trinity River, they rise in sharp peaks and jagged arêtes to elevations varying from 7,000 to almost 9,000 above sea-level. Although deeply glaciated, there apparently survives but one small residual glacier. There are numbers of tarns, one beautiful cluster of which, high along the crest of the range, has seldom been seen by human eyes, unless it be from aeroplanes. The predominating rock is granite, but metamorphic formations are occasionally encountered.

The serrated peaks contain some interesting, but little actually difficult climbing. Their highest peak, Mt. Thompson, 8,936 feet in elevation, offers a fairly good climb up its northeastern face. The finest ascent is Sawtooth Mountain, across a canyon from its loftier neighbor, a slightly lower, but considerably better rock climb. There are perhaps a score of peaks in the range above 7,500 feet in elevation.

The range is probably best reached from Weaverville, over fifty miles from a railway, but accessible by good auto roads. It is in the heart of an extensive county almost entirely covered with forest, as yet scarcely touched by the axe of the lumberman.

N. C.

* * *

*Possible Base for Mountaineers in India.* The Himalayan Research Institute of the Roerich Museum, 310 Riverside Drive, New York City, has established a field headquarters in the Kulu Valley, Naggar, Northern Punjab, India. A permanent group of scientists

[1] Authorities:—

Brettes, Comte Joseph de, *Reisen in Nordlich Colombia,* Braunsweig, 1898.

Brettes, Comte Joseph de, *Chez les Indiens du Nord de La Colombia,* Tour du Monde, February *et seq.,* 1898, Paris.

Sievers, W., *Reise in der Sierra Nevada de Santa Marta,* Leipzig, 1887.

Simons, F. A. A., *Proceedings,* Royal Geographic Society 1879, pp. 689, 752 (Map); Dec. 1881; 1885, pp. 781, 840; 1887, p. 705 (Sierra Nevada de Santa Marta Goajira). Maps.

will eventually be in residence here for the study of archaeology, botany, bio-chemistry, astronomy, meteorology and kindred sciences. It will also serve as an advanced field-base for expeditions into the surrounding regions to collect research material. Situated at an elevation of 6,000 feet in the foothills of the Himalaya and at the very gates of a mighty mountain hinterland, this American outpost will form a convenient point of departure and return for mountaineering expeditions. Membership in the Institute, like that of our large scientific museums and institutions, will be only a matter of a small annual subscription. The Institute will assist members in planning and fitting out mountaineering expeditions into the adjoining territory. Dr. George N. Roerich is resident director. Kulu is south of Kashmir and north of Garhwal. The nearest of the great peaks to it are Kamet and Nanda Devi. The district is one of great beauty and fertility—a second Kashmir. See Bruce's *Kulu and Lahul,* Edward Arnold, 1914.

* * *

*The Federal Board of Surveys and Maps,* representing twenty-two map-making or map-using organizations of the United States Government, maintains in Room 6206, Interior Department Building, Washington, D. C., a map information office with data relating to maps and general geographical information for any part of the world. No maps are furnished, but inquiries about them and where to obtain them are gladly answered. Mr. J. H. Wheat is the Secretary of the Board.

In 1929 the Board of Surveys and Maps published a 31 page pamphlet, "The Mountains of the United States," which gives descriptions of the principal mountain ranges and indicates the relationships between them. The compilation was made in 1910-1912 by Henry Gannett, formerly geographer of the Geological Survey and chairman of the Geographic Board. This pamphlet is distributed free and will prove of much interest and value to those wishing a precise definition of the extent of the various ranges and groups in the United States. There are no less than one hundred of these comprised within the Rocky Mountains alone.

* * *

*A newcomer* to the fold of Mountain Clubs is the "Dolomite Club" of Winnipeg, founded about a year ago by a group of enterprising members of the American and Canadian Alpine Clubs resi-

dent there. Not being blessed with anything higher than a haystack in their immediate environs, they have recourse to an abandoned lime stone quarry not far away and "do all sorts of possible and impossible climbs" on its rugged walls, some of which though necessarily short are reported to be distinctly fancy. Membership is confined to graduates, undergraduates and members of the staff of the University of Manitoba. The qualifications for active membership include proficiency in skiing (2 years) and in mountaineering (2 years) and a season in the quarry climbs. The purpose of the skiing requirement is to develop ski-mountaineering. Several of the members have given an excellent account of themselves on rock work in the mountains. The club motto is "Pares cum paribus facillime congregantur."

* * *

*The 20th Annual Meeting and Dinner* of the New York Section of the Alpine Club of Canada was held at the Hotel Brevoort, March 29th, 1930, Mr. F. N. Waterman presiding. One hundred members and guests attended. An entertaining talk on last summer's camp at Rogers Pass in the Selkirks was given by Miss M. Helen Smith. The feature of the evening was the story of the first ascent of Mt. Sir Alexander (Mt. Kitchi) 10,900 ft., July 31st, 1929, by Newman D. Waffl, Helen I. Buck and Andrew J. Gilmour. Four previous attempts by other climbers had failed and several had expressed the opinion that because of snow conditions on the summit the mountain would never be climbed.

Mr. Frederick K. Vreeland spoke on his early explorations in the region, his pictures showing how the great peaks Sir Alexander and Ida dominate the surrounding mountains.

Mr. Waffl told of the climb. A high camp was established at an altitude of about 7,400 ft., and the climbers were out twenty-two hours from this camp. The summit was reached late in the afternoon and a different route was followed on the descent.

For the closing number Mr. W. Osgood Field showed some striking reels of the higher Caucasus and of skiing in the Alps, remarkable both for their thrill and the great beauty of sun and shadow and drifting clouds over snow peaks.

* * *

Possibly the earliest mountain fatality in the United States, was that of Elisha Mitchell in 1857. While exploring the mountains of North Carolina, he was killed by a fall from a precipice. It was in

his honor that Mt. Mitchell (6,711 ft.) was named. He was state surveyor and was the first to announce that these peaks are the highest east of the Mississippi River, *not* of the Rockies, as is so often stated. Harney Peak (7,242 ft.) in the Black Hills of South Dakota possesses that distinction. Dr. Mitchell was born in Litchfield county, Connecticut, in 1793 and later became professor of chemistry and mathematics in the University of North Carolina. It is interesting to note that he was also a Doctor of Divinity.

* * *

There has recently appeared in the *Revista Mensile* of the C. A. I. (Vol. XLVIII, Sept.-Oct., 1929, No. 9-10, pp. 213-223) a very interesting article by one of our members, M. Strumia on the northern Canadian Rockies, giving an account of the climbing done there in 1928 by the author in conjunction with Messrs. Thorington, Hainsworth, and Hillhouse.

* * *

Those interested in the history of the exploration of the Eastern Alps will read with interest the article on "The Oetzthal Glaciers in History and Cartography before 1800" by Dr. J. M. Thorington in the *Geographical Journal* for March, 1930.

* * *

There appears to be a renaissance of interest in the Himalaya. Last summer a German expedition from Munich attempted Kanchenjunga and was only prevented from reaching the top by the onset of bad weather, when they had overcome the greatest difficulties. A new and much larger expedition has just left under the leadership of Prof. Dyhrenfurth and composed of Austrians, Germans, and English to attempt the mountain again. The present plans are to attack from the east, by way of the Zemu Glacier which is the same route of approach as that used by the Bavarians last year. It is expected to place the base camp near the Green Lake on the left bank of the glacier and work up a series of high camps from there. Profiting by the experience of last year's party, some 4,000 feet of rope has been taken, in the expectation that it will be necessary to rope up a considerable portion of the northeast ridge to make it possible for loaded coolies.

The Bavarian expedition, led by Dr. Bauer, included young climbers from the Munich section of the German and Austrian

Alpine Club. After three weeks of herculean efforts, they attained an elevation of 24,600 feet on the long ice ridge which descends from the main north ridge of Kanchenjunga to the Zemu Glacier. From here to the summit, prospects appeared excellent, but they were forced to abandon the attempt by a snow storm which dropped no less than six feet of snow, and they considered themselves fortunate to be able to come out safely.

* * *

The Volcano Purace (15,420 feet) in Colombia was climbed last summer by W. Jenks Woolston of Chestnut Hill, Pa., who was on a collecting trip in that region. The climb was made from Purace village, about twenty or twenty-five miles from Popayan in the Cauca Valley and is reported to have been very easy having been accomplished without the use of any particular mountaineering equipment.

* * *

The complete reports of the climbing accomplished by the Andes Expedition of the D. u. O. A. V. has just appeared in its *Zeitschrift* for 1929. The purely mountaineering aspects of the trip were often subordinated to the necessity of assisting in the survey work. Illampu and a peak to the north, only slightly less high, were climbed as well as Casiri, Chearoco, and Vinohurara to the south, all in the Cordillera Real of Bolivia.

Shortly after the departure of the D. u. O. A. V. expedition a lone German from Sorata made the ascent of Illimani over the north ridge, a new route chosen merely because of its directness from La Paz.

* * *

*International Kanchenjunga Expedition.* Dispatches in the *New York Times* of May 24th report the death of Chettan, a veteran porter of all three Everest expeditions, who was killed by an avalanche on the upper Kanchenjunga Glacier on the northwestern side of the mountain. By a miracle, the rest of the climbing party, Hoerlin, Schneider, Wieland, Duvanel and eleven porters escaped, although two of the latter were slightly hurt by blocks of ice. The avalanche which covered an area one mile square, stopped only three hundred yards from Camp No. 1. In consequence of this disaster, the party has abandoned its attack on the north ridge and will transfer its efforts

to the west ridge from the unknown western branch of the Kanchenjunga Glacier.

The expedition left Darjeeling on April 6th under the leadership of Professor Günther Dyhrenfurth of Germany. The other members are: H. Hoerlin, Ulrich Wieland and H. Richter, all of Germany; Marcel Kurz and H. Duvanel of Switzerland; E. Schneider of Austria; F. S. Smythe of Great Britain and Enrico Gasparri of Italy. Frau Dyhrenfurth is also of the party. It is one of the best equipped and strongest mountaineering expeditions that has ever operated in the Himalaya.

Great transport difficulties were encountered on the approach, owing to a late winter plus a storm which deposited snow at low levels. At Jongri fifty Nepalese porters deserted on account of a blizzard, leaving a reduced and weakened party to traverse the 17,000-foot Kang Pass. Hoerling and Schneider climbed Kang Peak (19,000 ft.).

* * *

*Legislature Acts Concerning the First Ascent of the Grand Teton.* A possibly unique instance of legislative attention being devoted to a subject primarily of mountaineering interest, is a resolution of the Wyoming legislature concerning an ascent of the Grand Teton. The following quotation from an interesting pamphlet entitled "Placing the Grand Teton Memorial Tablet," by F. M. Fryxell, reprinted from the Annals of Wyoming (Vol. VI, No. 3, Cheyenne, Jan. 1930), presents a condensed account of the matter.

"On February 9, 1927, the Nineteenth State Legislature of Wyoming, following an investigation of the question of who made the first ascent of the Grand Teton, passed by unanimous vote a Joint Resolution 'declaring the first ascent of the Grand Teton Peak, in Teton County, Wyoming, to have been made by William O. Owen, Franklin S. Spalding, Frank L. Peterson, and John Shive, on August 11, 1898, and providing for a public record of the achievement.'

"Two years later, on February 21, 1929, the Twentieth State Legislature passed another Joint Resolution (introduced by Senator Robert C. Lundy) authorizing the 'placement of a Bronze Tablet on the summit of the Grand Teton to commemorate the achievement of the Owen party.' To make arrangements for the placing of the tablet, Governor Frank C. Emerson appointed the following committee: Mr. Joseph W. Weppner, chairman; Dr. F. M. Fryxell, Mr. Wil-

liam O. Owen, Mrs. Cyrus Beard, Dr. Grace Raymond Hebard, Senator Robert C. Lundy, Representative W. C. DeLoney, Mr. S. N. Leek, Mr. Phil Smith and Mr. William Gilman. Mrs. Emma Matilda Owen, wife of the mountaineer, offered to donate the tablet, an offer which was gratefully accepted. Subsequently the Governor designated Dr. Fryxell, Mr. Smith, and Mr. Gilman to make the actual ascent of the Grand Teton and affix the tablet on its summit.

"The placing of the Grand Teton Memorial Tablet was made a feature of the exercises held at the formal dedication of the Grand Teton National Park on the morning of July 29, 1929, at String Lake in Jackson Hole. Following the dedicatory ceremonies proper, the bronze plaque was unveiled by Governor Emerson's small son, Eugene. Mr. Joseph Weppner, representing the State of Wyoming, next introduced the members of the tablet committee, and then formally presented the tablet itself to Mr. Sam T. Woodring, Superintendent of the newly-created park, who gave the consent of the National Park Service to its placement and in turn entrusted its keeping to Dr. Fryxell, representative of the trio commissioned to make the ascent. Shortly after noon of the same day, the climbers departed, attaining the summit and fixing the tablet in place just twenty-four hours after the beginning of their journey."

## AMERICAN ROCKIES--NOTES, 1929

By J. L. J. Hart

The fifth recorded ascent of Kit Carson Peak, in the Crestone group, was made in September, 1929, by a small party of members of the Colorado Mountain Club. The route was up the southeast face. The first ascent of the peak was made in 1916 by Albert Ellingwood and Eleanor Davis from the southwest, with a descent of the southeast face. The next ascent was probably by Carl Blaurock and William F. Ervin, about 1924, from the northwest. The next ascent was made in 1925 by a large party of the Colorado Mountain Club from the southwest. This route is easy; the others are somewhat steeper. Another party of the Colorado Mountain Club ascended the southeast face in 1925.

The mountain has three summits worthy of being called separate peaks. The main summit, being the central one, is stated by the

U. S. G. S. to be 14,000 feet in height, but is probably 14,150 feet. The other two are probably about 14,000. The north summit seems very easy of ascent and has been climbed by local people. The south summit has been climbed only by a party including Stephen H. Hart and Henry Buchtel in 1925. The ascent of the south summit from the northeast would be difficult and has not been made. Likewise the ascent of the main summit from the northeast should make an interesting new route.

* * *

The east face of Longs Peak was ascended by R. L. M. Underhill, alone, in June, 1929, by the original route. This is the first lone ascent since the original ascent, by Professor Alexander. The east face has, as usual, proved too difficult for inexperienced climbers. Early in August, 1929, two young men were marooned all night in the Notch Chimney and were finally rescued by guides. Two weeks later Charles W. Thiemeyer, of Denver, twenty-eight years old, fell while ascending the Notch Chimney. The fall of over 1,000 feet was of course fatal. It was probably from this chimney that Gregory Aubuchon fell to his death in 1921 while attempting a descent alone. The fatal accident to Forest Ketring in 1926 was probably at a lower point. Thiemeyer's companions were forced to spend the night in the Chimney and were rescued the next day by guides with the aid of ropes. This party of three were members of the Swiss Alpine Club and were using a rope, although all of the party were not tied to the rope at the time of the accident.

* * *

A winter ascent of Longs Peak was made on New Year's Day, 1929, by Jess L. Fults, A. L. Richey and Leo Sisler and also another about the same time in 1930, by Fults. After the first climb the climbers were compelled to spend several days in the cabin on the Boulderfield, at an elevation of about 12,000 feet, because of a blizzard. On the second ascent the wind again proved to be of extreme violence, These are the first recorded winter ascents since that of January, 1925, when Agnes Vaile lost her life on the descent and Walter Kiener was permanently crippled.

* * *

The Adaman Club of Denver and Colorado Springs continue their custom of ascending Pikes Peak (14,110 feet) every New Year's Eve. Several members of The American Alpine Club are members.

A small group of members of the Colorado Mountain Club have organized the Colorado Arlburg Ski Club, members of which have done, and plan to continue, a certain amount of mountaineering on skis.

* * *

A mountaineering club is being organized in Wyoming.

* * *

The second ascent of the most difficult peak in Colorado, the Lizard Head, 13,156 feet, was accomplished on June 9, 1929, by Harold G. Wilm and Dobson West. The first ascent was made by Albert Ellingwood, accompanied by Barton Hoag, in 1920. The second ascent was made with a hundred and eighty feet of rope, spikes, karabiner and roping-off rings. The climbers followed Ellingwood's route, finding his rope and three of his spikes. The last few hundred feet required two hours and a quarter on the ascent and about an hour and a half on the descent. An illustrated account will be found in *Trail and Timberline,* No. 130, August, 1929.

* * *

Mt. Wilson, 14,250, and Wilson Peak, 14,026, were ascended by a party of the Colorado Mountain Club early in July, 1929. The former is not an easy peak and has not been fully explored by climbers. It is thought that an unnamed peak about one or two miles west of these two peaks is over 14,000 feet. It has probably never been ascended.

* * *

The first ascent of Lindbergh Peak, an impressive spire in the Hell Hole region, the summit of which attains the altitude of 12,000 feet, was made September 1, 1929, by Carl A. Blaurock, William F. Ervin and Stephen H. Hart. There are a number of sharp summits in this region and many new routes are available to the mountaineer. This peak in particular is well known and has been attempted several times. The route chosen culminates in a sharp and spectacular ridge. From any other direction the ascent should prove quite difficult.

* * *

A hotel for skiers, Jim Creek Lodge, has been opened at West Portal, Colorado, on the western slope of the Continental Divide. It is reached in two and one-half hours from Denver by the Moffat

LINDBERGH PEAK, COLORADO, 12,000 FT.

*Courtesy Col. Mt. C.*

LOOSE PINNACLE NEAR TOP OF LIZARD HEAD AS SEEN FROM SUMMIT.

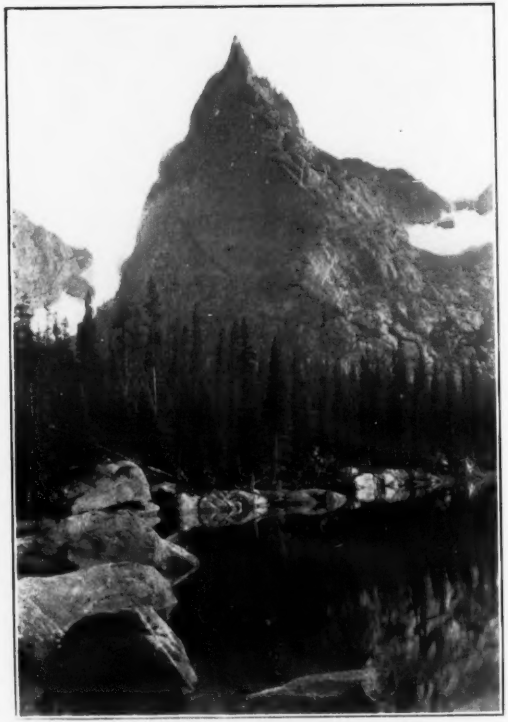

*Photo W. F. Ervin*

LINDBERGH PEAK, COLORADO, 12,000 FT.

*Courtesy Col. Mt. C.*

OVERHANG IN FINAL 100 FT. CHIMNEY OF LIZARD HEAD.

Tunnel. The hotel, elevation 9,000 ft., stands at the foot of James Peak and others which attain about 13,000 feet. It will undoubtedly give a strong stimulus to winter mountaineering in the Colorado Rockies. The skiing is good until May.

* * *

Mt. Audubon, 13,223 ft., was ascended on February 9, 1930, by Erl Ellis and John L. J. Hart, using skis.

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## POSTSCRIPT

The latest dispatches relative to the International Kanchenjunga Expedition announce that the attack has been abandoned for this year. They will attack instead Jonsong Peak (24,300 ft.) from the Jonsong La, returning to civilization through Nepal in preference to making another passage of Kang La, where such difficulty was encountered in the approach.

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